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ABSTRACT

This report provides an overview of vocational education and training systems in major European countries that is useful to practitioners and planners in further education. The first part provides brief descriptions of the vocational education and training systems in four countries: France, Germany, Italy, and the Netherlands. By way of comparison, a description of vocational education and training in England and Wales has been included, following those of the four countries which were studied as part of the project. The main text for each country explains courses and qualifications and the various progression routes open to students, examines planning and administration of vocational education and training, and highlights current developments and issues. Each country text is accompanied by an inset providing information about the national economy. Tables list and define training levels in France and give the gross domestic product of the four countries and other leading industrialized nations. For comparison, a description of vocational education and training in England and Wales is included. The second part provides summaries of training in four employment sectors: construction, electrical and electronic engineering, motor vehicle mechanics, and travel and tourism. These summaries provide an industry profile and information on skill trends and curriculum concerns or implications for education and training. A brief conclusion summarizes practice across the four countries and the United Kingdom in four areas of concern to curriculum planners: participation, specialization, flexibility, and continuing education. (YLB)

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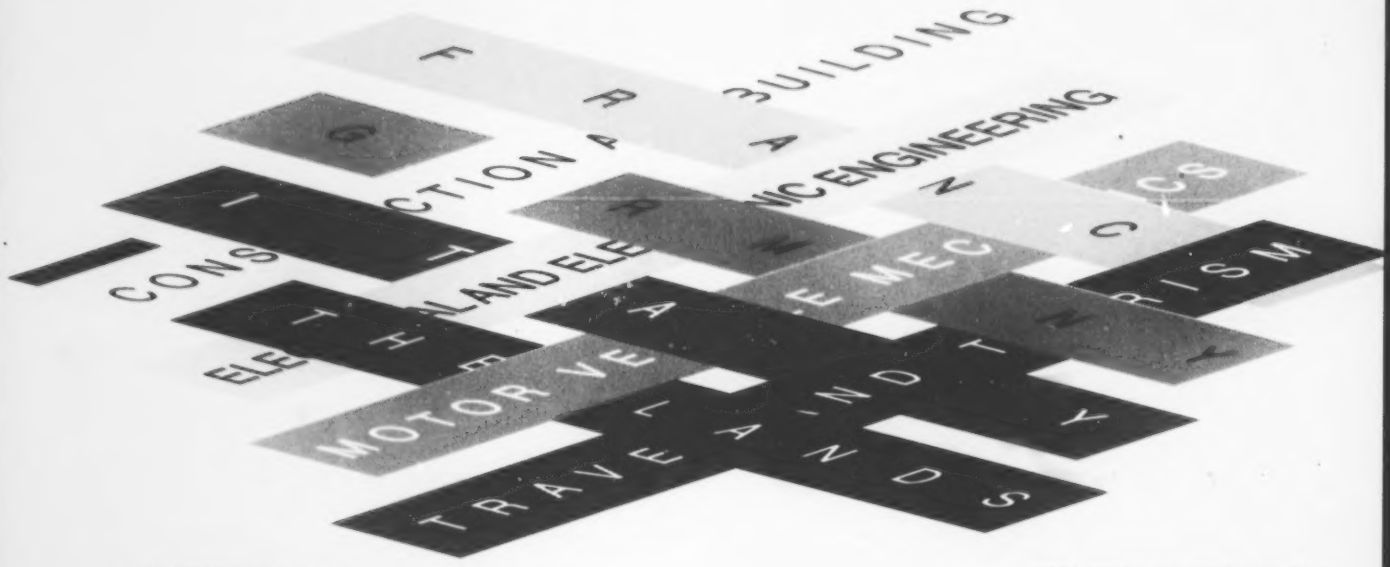
VOCATIONAL EDUCATION AND TRAINING IN EUROPE

A FOUR-COUNTRY STUDY IN FOUR EMPLOYMENT SECTORS



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INTRODUCTION

This report constitutes the final outcome of an ambitious project led by David Parkes of the European Institute of Education and Social Policy (EIESP) and jointly supported by work-related further education (WRFE) arrangements of the Employment Department and the Further Education Unit (FEU). There are a number of other written outcomes, including a full project report prepared by participants in the project and published in February 1992 by the Association of Vocational Colleges International (AVCI)[1] in its European bulletin series (Volume IV); a further edition was published in April 1992. Reference to other written outcomes may be found in the information bank publicity leaflet issued by the FEU in March 1992. This report was written to provide an FEU outcome from the the project aimed at the further education sector, drawing on the wide range of material generated, but also providing an overview of vocational education and training systems in major European countries useful to practitioners and planners in further education, particularly in the four vocational sectors studied.

The project, which began late in 1989, was designed to assist planning for vocational education and training in the UK by observing trends and developments in Europe. Another intention was to develop a network of informed practitioners working in further education and related areas in each of the four vocational sectors.

The means chosen to achieve this was to create four teams of practitioners drawn from industry and education and to arrange a series of visits to four European Community member states to observe practice. The visits were informed by planning meetings, including a preliminary residential meeting held at The Staff College, Coombe Lodge, in autumn 1989.

A number of background papers were available at the preliminary planning meeting and these, together with reports on each sector's visit to each country, are available from the Further Education Unit (see publicity leaflet — *VET in Europe Information Bank*). This paper constitutes a relatively modest digest of the experiences of the project. It was prepared for the FEU by Mike Duckenfield, formerly of the Adult Training Promotions Unit at the Department of Education and Science.

In an introduction it is difficult to capture the broad experience of project work involving a matrix of four employment areas and four countries. For the whole picture there is no substitute for the full set of reports. It is also reasonable to observe that there is no common viewpoint between the four sectors or common experience in each of the four countries studied. An illustration of this difficulty of comparison is the wide variation in Europe of the meaning of levels.While NVQ levels (Table 5, p.33) have much in common with Italian levels (Table 15, p.59) being based on levels of performance in work roles, EC levels (Table 8, p.35) are quite distinct, being qualification based, and the French reverse the order of levels (one, possibly logically, being the highest level). In spite of these difficulties, some outstanding issues emerge and are worthy of consideration as general conclusions.

1. Association of Vocational Colleges International (AVCI), Middlesex University, All Saints, White Hart Lane, London N17 8HR. Telephone: 081-368 1299, Fax: 081-365 1772

The first of these issues is summed up at the end of the travel and tourism sector's report on the French visit. The final paragraph of this report is as follows:

> 'A considerable unease develops after a study visit such as this. The report is shot through with criticisms of the French system for its old-fashioned teaching and assessment, its centralised control and its lack of flexibility. It was with some chagrin, therefore, that we noted that the products of this outdated system were lively, vigorous, well-informed and skilled for the most part. Comparisons with British equivalents would mostly be favourable to the French. This could not, in France, be accounted for by a natural respect for and commitment to vocational qualifications (as it could in Germany). The French suffer from many of our problems, for example lack of status of vocational training, poor staying-on rates and so on. Of course, the over supply of trainees means that only the best may be selected for employment, but most of the trainees we met were also of high quality: more outgoing, knowledgeable and confident. We would not wish to make an attempt to account for this paradox ('worse' training, 'better' trainees) but merely place it on the table for examination.'

A conclusion drawn from this might be that a well-developed and innovative training service in the UK, largely provided through further education colleges, is battling hard, but with little success, against a national culture and system which are hostile to vocational education and training. This, however, would be a distortion and would tend to lead to self-congratulation and complacency. A more alarming prospect for further education would be provided by the German system in which, it is suggested in one report, industry's commitment to training derives mainly from its ownership of the process and its consequent control over its relevance and currency. In this country, the industry lead bodies and the Training and Enterprise Councils have introduced a large measure of industry control over the design and funding of training. It is important that the further education sector, as a whole, should be able to demonstrate how its advanced processes of delivery, together with its flexible approach to continuing education and training, can deliver industry's requirements as effectively and efficiently as its competitors. If this can be achieved, together with successful partnerships with industry possibly mediated by Training and Enterprise Councils, then neither complacency about further education's undoubted qualities nor alarm at the prospect of industry control of education and training should deter significant progress by further education. The examples drawn from Europe in this project provide useful models and occasionally warnings about such progress.

Another area illuminated by the experience of this project is the issue of breadth in training. In some 'country sector' reports it is noted that breadth is an issue because industry rejects broad-based training, preferring narrow job specialisation, often unrelated to the specific vocational sector (for example, marketing rather than travel and tourism). A broad consensus emerges, however, from a full reading of the project's outcomes about the need for versatility and adaptability in changing industries, which could be a result of emphasising core skills in training design and close collaboration with industry. The only tension then is about the meaning of breadth. Such observations reflect the debate in this country about general vocational qualifications and support an emerging rapprochement about training design.

It is commonplace in discussions about comparisons with mainland Europe to observe that participation rates in post-compulsory education and training in this country are poor. While this is undoubtedly true, the unusual consensus in this country over targets for participation, taken together with advantages in curriculum

delivery and in access to continuing education, give hope for the future. Although parity of esteem for academic and vocational education may be an unrealistic aim (it has certainly not been achieved with the introduction of a vocational version of the French *baccalauréat*), an incremental approach to this through redesign, flexible access and incentives is bound to make some progress.

What has not been achieved in the UK is the partnership between industry and education over training, that is said to be the consequence of the *Dualsystem* in Germany and possibly of the equivalent Dutch system. The evidence of this report is that these partnerships are never easily, and rarely fully, achieved on a truly national basis and that successful partnerships are more likely to be achieved on an industry by industry basis within a favourable framework. The basis of such developments is under construction in the UK.

It is therefore possible to be cautiously optimistic about the future of training in the UK. If anything like the Confederation of British Industry's education and training targets are achieved, the redesigned framework and content of vocational qualifications, together with the experience of flexible design and access in further education, may provide this country with a vital edge in the wider market and fierce competitive environment of the 1990s and the next century. Other elements, again often highlighted from the experience of this project, like better incentives and rewards for learners, will also need to be put into place if such ambitions are to be fully realised. It is to be hoped that this project has made some small contribution to these developments and will provide a stimulus to debate and useful source material for planners at local and national level. Thanks are due to all participants and to Mike Duckenfield, author of the following summary report.

MARTIN C. JOHNSON

THE COUNTRIES

This part of the report provides brief descriptions of the vocational education and training system in each of the four countries involved in the study. In each case, there is a central text supported by background information displayed in insets and tables.

The main text follows a common format. First, there is an explanation of courses and qualifications and of the various progression routes open to students. This outlines the arrangements for vocationally-oriented courses during the latter period of compulsory schooling and explains the transition to vocational studies at upper secondary level, and eventually in higher education, or to apprenticeship. Mention is made of the principal qualifications.

The second element in the text deals with the planning and administration of vocational education and training. It looks at the role of central government in curriculum planning, the extent to which administration is decentralised, and the involvement of employers and trades unions.

Finally, there is reference to some of the developments and issues current in vocational education and training in each of the countries.

Each country text is accompanied by an inset providing information about the national economy.

Tables list and define training levels in France, give the gross domestic product of the four countries as well as of other leading industrialised nations and list the main apprenticeship trades in Federal Germany (the latter tables both accompany the text on Germany).

By way of comparison, a description of vocational education and training in England and Wales has been included, following those of the four countries which were studied as part of the project. The inset on the UK economy and the tables on the sectoral distribution of the UK work-force and the extent of qualification among certain occupational groups accompany this description. Three other tables in this section give education participation rates for 16- to 18- year-olds in the UK and the four countries studied, National Vocational Qualification levels and national training targets, and the training levels adopted in 1985 by the European Community. These levels can be further compared with similar classifications adopted in France (see section on France) and Italy (see section on motor vehicle mechanics).

Vocational education and training

Until the age of 14, all French children follow the same curriculum and most continue to do so for a further year — the penultimate year of compulsory schooling. Those who do not may opt for one of three alternative routes: a two-year programme of pre-vocational studies (customarily regarded as suitable for the least academically able), a three-year version of the programme leading to the basic craft level *certificat d'aptitude professionnelle* qualification (see below), or a technological option which lays increased stress on the study of French and maths.

While it is the policy of the French government to develop the last of these, it is also policy to move away from vocational and pre-vocational choices until the start of upper secondary schooling.

This upper stage, which occurs in general or technical *lycées*, comprises the final year of compulsory schooling and two subsequent years. On entering this stage students have a choice of courses leading to several qualifications — academic, technical and vocational. The most well-known outside France is the *baccalauréat*.

- *Baccalauréat*. Until recently, this route only offered three-year academic and technical courses, normally as a prelude to higher education. In 1985, a two-year vocational stream leading to the *baccalauréat professionnelle* was added.
- *Certificat d'aptitude professionnelle* (CAP). Normally a two-year programme of basic craft studies, including work placement.
- *Brevet d'études professionnelles* (BEP). Also a two-year vocational programme but more broad-based and academic. In theory, it provides training at the same level as the CAP but, by custom, it has a higher standing.
- *Brevet de technicien*. A three-year course leading to a technician's diploma.

The introduction of the *baccalauréat professionnelle* is part of an attempt to raise the overall level of vocational qualification. The Education Act of 1989 foresaw that virtually all school students would achieve at least the CAP or the BEP and nearly four in five should reach the level of the *baccalauréat* within this decade (see Table 1, p.13).

Important characteristics of the *baccalauréat professionnelle* are that students wanting to enter courses must first have attained a lower vocational qualification (normally the CAP or the BEP), and that, on completion of studies, four in five would be expected to enter employment (the reverse proportion to that for the academic and technical streams).

The use of innovative teaching methods is being encouraged for the new *baccalauréat*, whose increasing popularity is expected to marginalise the *brevet de technicien* qualification. From a trial cohort of fewer than 1,200 candidates sitting the first examinations in 1987, numbers had risen sharply to nearly 19,000 by 1989.

A relatively small proportion — about 15% — of those leaving compulsory schooling enter apprenticeships, where they can study for the same qualifications as in full-time education. In the past, this has mainly meant the CAP (the only possibility until 1961), but apprentices are now being encouraged to progress to the BEP, *baccalauréat* and the *brevet de technicien* (see Table 9, p.42).

Higher vocational studies for those already qualified to *baccalauréat* level include two-year diploma courses in universities and equivalent institutions (*brevet de technicien supérieur* and the *diplôme universitaire de technologie*), as well as professional courses at first and higher degree level.

Continuing vocational education and training are diverse, with a variety of public and private providers, including chambers of commerce, professional associations, employers and training provided through the proceeds of a national training tax on employers. Qualifications, where they are appropriate, follow the same hierarchy as initial training. The CAP is increasingly used in adult updating and retraining and can now be attained through credit accumulation, as can the *brevet de technicien supérieur*.

Planning and administration

The French vocational education and training system has been characterised by national uniformity and central regulation. Government ministries (usually, but not always, those responsible for education) control most qualifications and the curriculum and examinations leading to them. They do this in conjunction with a network of 17 sectoral advisory committees — *commissions professionnelles consultatives* (CPCs).

The first CPCs were established by government in 1948. Each is composed of ten representatives of employer associations and an equal number for the labour unions. In addition, there are seats for government officials and inspectors, teachers, parents, chambers of commerce, consultants, and representatives of organisations including the Centre for Study and Research into Qualifications (*Centre d'études et de recherches sur les qualifications*), an office under the joint aegis of the ministries of education and employment. The committees offer advice and formulate proposals on the definition and contents of training courses, and on their implementation and revision within the various professional and occupational sectors. They also review and make recommendations on qualifications.

While the committees provide a formal link between education and business, they are, nonetheless, consultative by nature in a political culture where government direction has long been the custom. Memberships are large, which tends to dilute the input of employers, and attempts to gain a more active involvement by business in specific cases have not always been a success (see travel and tourism). In addition, the sector-specific basis of the committees has made them hard to reform — due to entrenched interests — and not conducive to the development of interdisciplinary studies. This is despite the existence of an overarching committee (*comité interprofessionnel consultatif* — CIC) which advises government on broad policy matters, such as the relationship between general, technical and vocational education and the integration of planning at national and regional levels, and on which all the CPCs are represented.

Since 1983, there has been a major move toward decentralisation in educational administration. In vocational education and training, the intention is to make provision more responsive to local labour market needs and to foster linkage between initial and continuing education. Local authorities now have to define overall training needs in their regions and to draw up a provisional investment programme. This ties in with changes in continuing vocational education, where, since 1980, the regions have been required to devise and implement regional development plans.

Unlike initial vocational education, which has been the responsibility of the Minister for Education, continuing vocational training lies with the Minister of Social Affairs and Employment. To aid co-ordination, there is a complex network of national and regional committees, including an inter-ministerial committee chaired by the Prime Minister and its regional equivalents, presided over by the regional *préfects* .

Developments and issues

In addition to decentralisation, current developments in French vocational education and training include steps to make progression routes through the system more flexible, notably through the use of credits; the introduction of work placement as a requirement within the *baccalauréat professionnelle* ; and attempts to limit the proliferation of different qualifications and to rationalise the number of titles within these qualifications. The number of specialisms within both the CAP (down from 315 in 1984 to 250 in 1989) and the BEP (from 76 to 31 with a target of 20) is being reduced.

There is particular concern to raise the status of vocational education and training and to improve participation rates, and generally to combat the legacy of the long-held elite view of post-16 study. The figures tell the story. Of the 800,000 who leave the education system each year, 15% do so without any qualification and a further 45% stop at the level of CAP and BEP. The aim is to change this drastically during the present decade (Table 9, p.42).

The economy

France has the second largest economy in Europe, after Germany. The proportion of labour engaged in manufacturing is higher than in the United Kingdom and the Netherlands, but at 31.3% is substantially less than in Italy (37.9%) and Federal Germany (41.6%). The French economy has a relatively large agricultural sector, accounting for 7.3% of the work-force.

National training levels and targets in France

In 1969, the Interministerial Committee on Vocational Training, Social Improvement and Employment adopted an official classification of training levels. This places individuals within the French work force at one of six broad stages of attainment.

The French government has set targets for the proportion of the output of initial education and training to be met under each level by the year 2000. (The actual figure for 1982 is given in brackets.)

I and II Professional staff in posts normally requiring a first degree or equivalent qualification: 25% (ten per cent).

III Higher technical level normally requiring a *brevet de technicien superieur* university level diploma, i.e. *baccalaureat* plus two years' study: 20% (ten per cent).

IV Supervisory or technician level: *brevet de technicien*, or *baccalaureat technologique* or *baccalaureat professionnelle*: 30% (20%).

V Vocationally educated — two or three years: *brevet d'etudes professionnelles* (BEP) or *certificat d'aptitude professionnelle* (CAP): 20% (45%).

Va Staff who have received pre-vocational education (*certificat d'education professionnelle*) or attended short training courses of up to one year. (About 15% of students ended their schooling at this level and entered unskilled jobs in 1982. The target is to reduce the proportion leaving school effectively without a qualification to five per cent by 2000.)

VI Staff in posts not requiring any training.

Table 1

GERMANY

Vocational education and training

At the age of ten, after four years of common primary schooling, 95% of children in (the former Federal) Germany enter non-selective, but differentiated secondary schooling. The remainder enter comprehensive schools. About 30% start academic *Gymnasien*; the same proportion enter general education *Realschulen*; and a slightly larger number begins more practically-oriented studies in *Hauptschulen*, where courses conclude a year earlier, at the age of 15, than at the other schools.

About 25% of 16 year olds progress to pre-university studies leading to the award of the *Abitur*. These are pursued in upper secondary *gymnasiale Oberstufe*, including the academic *Gymnasien* and *berufliches Gymnasien*, where students can opt for more career-oriented studies, for example in engineering or economics. About one in six of those gaining the *Abitur* then makes a 'mature' entry into the apprenticeship system (some subsequently going on to higher education).

At the other end of the scale, nine per cent of Germans leave school and enter unskilled occupations for which they need receive no training. They must, however, attend vocational schools — *Berufsschulen* — for continuing general education at least one day a week until the age of 18. In addition, some leavers, usually at the age of 15, enter a preparatory year of vocational training in *Berufsschulen* before seeking an apprenticeship.

Berufsschulen are essentially part-time and designed to support the apprenticeship system by providing day and block release courses. They are usually monotechnic, offering courses in support of a single occupational sector, and they tend to be small. In Hamburg, a city of 1.6 million people, approximately 50,000 part-time students attend 48 *Berufsschulen*.

By contrast, *Berufsfachschulen* offer full-time vocational courses of at least one year to those with a *Realschule* or *Hauptschule* leaving certificate. The schools, in general, cover areas not catered for by the apprenticeship system, such as some aspects of health and community care, social work, music, foreign languages and those elements of construction training which, for health and safety reasons, cannot be undertaken at the work-place. The schools also offer a one-year basic vocational training course which can provide exemption from the first year of apprenticeship. Female students make up more than two-thirds of the enrolment at *Berufsfachschulen*.

By far the dominant means of school-to-work transition, catering for almost three-quarters of young Germans, is the *Dualsystem* of apprenticeship. This combines on-the-job training with day or block release, equivalent to two days a week (of which up to 40% consists of general education). Training varies from two to three and a half years (depending on the occupation), plus a three month probationary period.

School leavers wishing to enter an apprenticeship apply to an employer and, if accepted, enter a contract guaranteeing training in accordance with the Vocational Training Act 1969. The system offers training in as many as 378 recognised occupations, although the 25 trades most popular with men account for 60% of male trainees; the comparable figure for women is 80% (Table 3, p.18). Seventy per cent of training places are in small and medium-sized firms, and apprentices comprise one in seven of these firms' total work-force.

Qualification as an apprentice is essential for progression to *Meister* status, which may be achieved after at least two years' skilled employment and further training.

Meister can then supervise apprentices, and they play an important role in on-the-job training. Companies cannot gain training company status unless they employ *Meister*. About 27% of apprentices progress to *Meister* training.

Apprenticeship training does not assure permanent employment with the contracted employer. On qualification, about 60% of apprentices leave and seek jobs elsewhere. Six months after qualifying, nearly a half of all apprentices find permanent work in their specialist field. The other half divides fairly evenly four ways — between those entering jobs for which their apprenticeship training was irrelevant; those returning to further education; those enlisting in military or community service; and the unemployed (ten per cent of all qualifying apprentices). The drop-out rate from apprenticeship training is about 14%.

Planning and administration

Education, including vocational education and training, is a responsibility of the 13 states (*Länder*) and three self-governing cities (in the re-unified Germany). Co-ordination nationally is through the Standing Conference of Education Ministers (of the *Länder*).

The framework for vocational curricula and regulations for training is set down at federal level, interpreted and translated into courses by the individual *Länder* which, in turn, are implemented, according to local needs, by the chambers of commerce.

Advising the government on training regulations is a federal agency, the *Bundesinstitut für Berufsbildung*, which consults employers and trades unions. Minimum training specifications include occupational designation, length of training period, skills and knowledge to be conveyed (the occupational profile), guidelines on curriculum content and structure, and examination requirements. These regulations are legally binding and have a considerable effect on the contents of company training programmes as well as on wage and salary structures.

The chambers are legally recognised as the competent bodies in matters relating to vocational training. There are over 100 chambers, including craft chambers and agricultural chambers, as well as those of commerce and industry. Membership is mandatory, although by no means all companies pay fees. Only about one in five chooses to be a training company within the *Dualsystem*. Those that do not, however, are effectively prohibited from hiring young workers in any of the recognised occupations.

The chambers' responsibilities include accrediting businesses and employing organisations wishing to become training companies; registering training contracts between employers and trainees; setting, organising and marking examinations; and awarding vocational qualifications. Vocational training committees of the chambers consist of equal numbers of employer and trades union representatives, with *berufsschule* teachers acting as consulting members.

The *Dualsystem* is demand-led: there is no national or local manpower planning; the number of apprenticeships is determined by the aggregate of decisions by individual companies, which bear the cost of training. The system is further supported by a training levy on firms, and by federal and regional government.

Developments and issues

Inevitably, there are mismatches between supply and demand. Many applicants for apprenticeships fail to find places in their preferred occupations, while employers in some regions and sectors, including catering, construction and mechanical engineering, report unfilled vacancies. Also, there are marked gender differences in recruitment.

The system is highly structured and regulated, and it relies on a high degree of consensus among the principal partners. It is well established, recognised and understood. It is, however, somewhat inflexible. Changes in the classification of trades and in regulations take a long time to effect, and the system offers no short cuts to tackling skills shortages. Developed initially for craft trades, and then extended to cover manufacturing industry, the system leaves large parts of the growing service sector uncovered.

Until recently, apprenticeship training was based on the principle of time served. There is still a time requirement, but learning objectives have been introduced specifying competences to be acquired. These are enshrined in nationally agreed and statutory training regulations. Assessment is, however, entirely based on intermediate and final examinations.

Technological developments have meant that training content, particularly in some industrial sectors, has become too complex to be dealt with on the shop-floor alone. As a result, it has become increasingly necessary to teach key skills on separate off-the-job training courses at industry-wide training centres, of which there are about 600.

Over the last 40 years, there has been a gradual rationalisation of apprenticeship training, with the number of classified occupations being reduced from over 900 in the 1950s to between 350 and 360 this decade. The *Dualsystem* reflects the strong position of manufacturing in Germany and has benefited from the large numbers of young people available to enter apprenticeships. The decline in the birth rate and the rise of the service sector present new challenges.

Finally, it is worth noting that, save for the arrangement which allows for exemption from first-year apprenticeship for those taking the foundation vocational year, there has been no attempt to co-ordinate full-time vocational education, as provided by the *Berufsfachschulen*, and the part-time day release system of the *Berufsschulen*.

The economy

Between 1949 and 1964, the German 'economic miracle' saw industrial production increase by 60% and the gross national product triple, so laying the base for the strong growth that has continued until very recently. Germany is among the world's largest producers (and exporters) of iron and steel, machinery and machine tools, vehicles and electronics. More than two in five Germans work in manufacturing.

A measure of production:

gross domestic product in leading industrialised countries

Gross domestic product (GDP) measures the value of the output of production attributable to labour and physical capital (land, plant and equipment) within a country. Total GDP indicates the relative size of an economy. GDP per capita shows the value of production taking into account the varying sizes of countries' populations.

Some comparisons

	Pop. (m.)	GDP total (US $ bn.)	GDP per capita (US $)		Pop. (m.)	GDP total (US $ bn.)	GDP per capita (US $)
France	56.4	983.5	17,431				
Germany (Federal)	63.2	1,156.6	18,291	Other OECD:			
Italy	57.6	923.6	16,201	Austria	7.7	128.3	16,620
Netherlands	14.9	235.7	15,766	Australia	17.1	272.5	15,951
United Kingdom	57.4	902.5	15,720	Canada	26.6	509.0	19,120
				Finland	5.0	82.0	16,453
Other EC:				Iceland	0.3	4.1	15,851
Belgium	10.0	163.5	16,405	Japan	123.5	2,178.5	17,634
Denmark	5.1	86.2	16,765	New Zealand	3.4	44.8	13,258
Greece	10.1	74.5	7,349	Norway	4.2	67.5	15,921
Ireland	3.5	37.3	10,659	Sweden	8.6	144.4	16,867
Luxembourg	0.4	7.4	19,340	Switzerland	6.8	142.7	20,997
Portugal	9.8	82.3	8,389	Turkey	57.2	189.5	3,316
Spain	39.0	459.4	11,792	United States	251.4	5,392.2	21,449

Source: Organisation for Economic Co-operation and Development (OECD), *National Accounts: Volume One: Main Aggregates*. OECD is an international treaty organisation consisting of the leading industrialised democracies, a group sometimes known as G24. All figures are for 1990.

'Most nations recognise today that the quality of the education and training of the work-force is the single most important characteristic in determining economic competitiveness. Though not by itself a sufficient condition, a world-class work-force is certainly a necessary condition of national economic success. The link between skills and knowledge, and the high quality of goods and services, in countries such as (West) Germany and Japan is well established. The competitive success of their products is evident in the houses and on the roads of Britain. By means of them these nations achieve a higher gross domestic product, whether measured per capita or absolutely, than we do; and are able to afford a standard of living and quality of life which we often envy but cannot at present match.'

SIR CHRISTOPHER BALL

1. Ball, Sir C. *Learning Rays: The role of post compulsory education and training*. (Royal Society of Arts, April 1991)

Table 2

Main apprenticeship trades in Federal Germany (total trainees, 1988)

Men	Numbers	Women	Numbers
Motor vehicle mechanic	74,296	Hairdresser	57,989
Electrical fitter	46,379	Clerical assistant	47,851
Machine fitter	39,941	Salesgirl in food trade	45,072
Joiner	29,010	Doctor's receptionist	43,947
Painter and varnisher	28,898	Retail salesperson	43,166
Clerk in wholesale and export trade	28,269	Industrial clerk	41,169
Plant fitter	27,610	Salesperson	35,193
Bank clerk	26,255	Dentist's receptionist	30,488
Gas and water fitter	25,578	Bank clerk	28,966
Electronics technician, power systems	24,764	Clerk in wholesale and export trade	21,924
Industrial clerk	24,489	Assistant in business tax consultancy	19,074
Retail salesperson (stage 2)	23,168	Receptionist	18,830
Fitter	21,780	Office junior	17,713
Baker	21,185	Office clerk	14,526
Cook	18,640	Solicitor's clerk	13,096
Toolmaker	17,325	Home economics staff	12,898
Bricklayer	14,789	Clerk in public administration	12,420
Telecommunications technician	14,686	Notary's clerk	12,229
Butcher	14,222	Florist	9,435
Central heating and ventilation fitter	14,021	Technical draughtsperson	8,612
Office clerk	11,540	Pharmacist's assistant	7,595
Gardener	11,128	Cook	7,295
Radio and TV engineer	9,651	Gardener	7,225
Mechanic	9,124	Construction draughtsperson	5,942
Agricultural worker	9,096	Ladies' tailor	5,813
Total	c.952,5000	Total	c.715,900

Source: *Aspects of Vocational Education and Training in the Federal Republic of Germany*, Her Majesty's Inspectorate, HMSO 1991

Table 3

Vocational education and training

Italians are legally obliged to attend school only until the age of 14 (and that only since 1962). When a student leaves lower secondary school, he or she has four active choices:

1. Get a job and hope the employer provides training.

2. Enter an apprenticeship or employment training contract.

There are 540,000 apprentices (50,000 fewer than in the mid-1980s) accounting for about ten per cent of Italian 15- to 19-year-olds. The law stipulates eight hours of formal education and 32 hours of practical training a week. In practice, however, the length and content of apprenticeships are determined by labour union contracts, which vary from sector to sector, and the requirement for formal studies is rarely met. Where off-the-job training takes place, it is generally at a regional training centre. Apprenticeships are mainly found in the craft and small industry sector, and three in five are in the more industrialised north of the country.

A new form of employment training contract (*contratto formazione e lavoro*) was introduced by legislation in the mid-1980s. This allows for the employment of those in their teens and twenties, and who are not in work, on contracts lasting 12 to 24 months. The contracts can be used in any sector of the economy or in organisations of any size. Participating companies, which have to prepare a training scheme to be agreed by regional government and the labour unions, benefit from a 50% reduction in social security payments for all those employed. Since their inception, the contracts have proved increasingly popular: the number of people entering one, rose from 119,000 in 1985 to 388,000 two years later. Small firms, in particular, have welcomed them (most contracts are with firms of fewer than 50 employees). A high proportion of trainees obtain permanent jobs with the contracted company or another employer at the end of the period. Provision for training varies. Off-the-job training is at regional training centres.

Coincidentally, with the introduction of employment training contracts, the Italian government adopted a classification of qualifications and training attainment which features seven levels (see section on motor vehicle mechanics).

3. Stay on at school or enrol in a state vocational training institute.

Upper secondary schools normally provide courses of study lasting five years, whereupon students receive the *diploma di maturità* — the standard university entry qualification. There are several types of school, ranging from those with a classical curriculum to the *liceo scientifico* and training colleges for prospective nursery and primary school teachers. In addition, there are technical institutes offering technician-level courses in subjects including engineering, art and design, and home economics. A five-year study programme leads to a qualification which is also valid for university entry. In all, these schools and institutes offer 305 subject specialisations.

A third type of institution which has become integrated into this system is the state vocational training institute (*istituto professionale*). These were created in the 1960s, initially with courses of two or three years in length, but they have since been extended to five years to bring them into line with those of the upper secondary schools and technical institutes. The vocational training institutes offer courses in about 200 specialisations, with an initial three-year diploma — *di esperto* — followed

by a two-year diploma — *di maturità professionale* — which is valid for university entry. About 500,000 students are enrolled in the vocational training institutes, of which three-quarters are in the industrial/handicraft and commercial sectors.

4. Enrol at a regional training centre.

The regional training centres (*centro di formazione professionale regionale*) are organised as a part of labour market planning, and not of the education system. They are run as a partnership between regional government, employer associations and labour unions, and offer full-time basic craft training, as well as off-the-job and continuing training.

The legally established length of a basic training course is 2,400 hours (equivalent to two years' full time); this includes a brief practical training period in a company or employing organisation for an unspecified amount of time. Courses are organised by sector, and trainees completing courses are awarded a certificate of vocational competence (*attestato di qualifica professionale*).

In the second half of the 1980s, financial support for regional vocational activities rose by about 60% in real terms. By the end of the decade, about 370,000 trainees were enrolled on courses annually.

Planning and administration

Vocational education has been seen as low in status, practically-oriented and employer-based until relatively recently. Where it included a formal educational element, this was regarded as an aspect of general or continuation studies (as opposed to academic or technical studies offering a route into higher education, and then into skilled jobs). A point of departure from this was the creation, under the Ministry of Education in the 1960s, of the *istituti professionali*.

Outside schools, vocational training has been developed under the aegis of the Ministry of Labour. This funds in-service training for employees and a state work-placement system. The 1948 Italian Constitution, however, delegated vocational, small industry and crafts training to the regions, and the hiatus in creating regional authorities in the early 1970s hindered the development of vocational training.

In 1977, legislation gave the regions responsibility for the retraining of workers and for youth unemployment measures. A year later, another law gave the regions the right to devise three-year programmes for vocational training, both initial and continuing. These would be based on national and regional economic planning and the particular needs of different industrial and occupational sectors. The regions could plan annual schemes within this framework and delegate implementation to provincial or local authorities.

On the basis of the three-year programme, regional *assessorati* (departments) for vocational training or other bodies (the province, the local authority, or the *cominita montana* — mountain villages grouped under one authority) formulate annual plans which may include training proposals from regional training centres, firms, labour unions, and non-profit private agencies. Regional offices collate and co-ordinate programmes and consult employers and labour unions. On approval, the regions determine funding support — whether activities will be financed by local funds or submitted as a project for European Social Fund support — and draw up agreements with the agencies or authorities which will administer training courses.

Developments and issues

The extension of courses in the *istituti professionali* to five years, has helped to put vocational education on a par with academic and technical upper secondary education, as a route to higher education. The institutes are criticised, however, for having less contact than the regional training centres with industry, and for offering a curriculum which, like that in the technical upper secondary schools, is too specialised in its early years.

Two reform initiatives, currently extending to 130 *istituti* and technical upper secondary schools, are seeking to tackle these issues by reducing options for 14- to 16-year-olds from about 140 to 20 broad vocational fields and by fostering improved links between education and regionally-organised training. One aim of the experiments — seen as a precursor to raising the age of compulsory school attendance to 16 — is to attract more current leavers to continue in full-time studies.

Compared with those of some other countries, the apprenticeship system is unstructured and offers uncertain training opportunities. Policy favours the regional planning of vocational training, as a partnership between government, employers and labour unions, with delivery focused on the regional training centres. Regionalisation is causing disparities, however, particularly in the award of similar, or even the same, qualifications for courses of widely different content and length. For example, a recent inquiry found 3,800 different titles for courses run by the regions.

There is also concern about the ability of supply-side planning to keep pace with employers' rapidly changing training needs. One response has been to call for better labour market information.

The economy

As recently as 1956, more Italians worked in the fields than in factories or offices. Today, Italy's is the world's fifth largest economy. Industrial production, led by steel, automobiles, machinery and electrical equipment, doubled between 1953 and 1961. The Fiats and the Pirellis notwithstanding, Italian manufacturing is dominated by small and medium-sized firms, notably in clothing and food — two of the country's key export markets. Agriculture now accounts for only one in 20 of the work-force.

NETHERLANDS

Vocational education and training

Specialisation begins with the start of secondary education at the age of 12. Students then choose between a six-year academic track, five-year (HAVO) or four-year (MAVO) programmes of general education, or a four-year programme of vocational education (*lager beroepsonderwijs* — LBO). Generally, these options are provided in separate schools. The first year consists of a transition class of which there are two types — one for the vocational stream and one for the other streams. Transfer between tracks, although possible, is difficult.

The first two years of LBO are devoted mainly to general subjects, including Dutch, a foreign language and arithmetic. In the final two years there is increasing emphasis on vocationally related studies. Students choose from sectoral options. About half take technical studies (building trades, mechanics, metalworking, etc.); one-quarter take home economics; agricultural and commercial studies each account for about nine per cent of students; and the rest are divided between retailing and nautical studies. Students completing LBO would normally be expected to progress to apprentice training or upper secondary vocational or technical education (*middelbar beroepsonderwijs* — MBO).

Recruitment to the four-year MBO is from both LBO and the four-year programme of general education (MAVO), and takes place at the end of compulsory schooling. The MBO offers studies in four curriculum sectors. Three of these each account for about 30% of students. These are technical subjects and natural sciences, personal and social services and health care, and commerce, including catering. The fourth sector, agriculture, accounts for about seven per cent of students. (See the section on electrical and electronic engineering for a description of upper secondary technical education in the Netherlands.)

Short MBO courses have been available since 1979, and are designed for pupils from LBO and MAVO schools who cannot find a suitable niche in standard (four-year) MBO programmes or the apprenticeship system. Courses are full-time, last two or three years and involve a substantial amount of practical training, and train students for junior positions.

Higher vocational education (*hoger beroepsonderwijs* — HBO) has been comprehensively overhauled, with the previous 300 institutions reorganised into a new system of about 80 *hogescholen*. Four-year study programmes lead to degree-level qualifications in one or more of seven vocational curriculum sectors: commerce with 25% of enrolment, technical studies (24%), teacher training (16%), health care (12%), courses in the arts (ten per cent), social and community work (eight per cent), and agriculture (five per cent).

Since the mid-1970s, the proportion of secondary students enrolled at LBO schools has declined from 34% to 29%; in the period 1975-6 to 1987-8, absolute numbers fell from 403,000 to 300,000. Simultaneously, numbers taking part in MBO rose from 114,000 to 295,000, and those in HBO from 111,000 to 160,000.

Apprenticeships consist of one or two days a week studying theory in formal education at an apprentice training centre, with the rest of the week occupied by practical training carried out 'on the job' or in a company trainee workshop. Basic training lasts two to three years and leads to an examination and award of a diploma.

There is an optional advanced element lasting a further one or two years, for which practice is supported by over 350 different specialised vocational courses. These are concentrated at 33 training centres throughout the country, and range from those for shoemakers and for opticians to those for jobs in the retail trade or in social and community services. Unlike in Germany, the Dutch apprenticeship system provides extensive training in the service, as well as the manufacturing, sector.

Apprenticeship places are available to those aged 16 or older, with or without an LBO or MAVO certificate (although the apprenticeship may take an extra year if pre-entry education is deemed inadequate). Apprentices are generally taken on as employees, but in areas of high unemployment where the employer feels unable to guarantee continued work, the apprentice may attend a company training centre or a centre set up by a group of companies, and receive a training allowance rather than a wage.

Planning and administration

Dutch administration has been highly centralised, and education, vocational or otherwise, is the responsibility of the national Ministry of Education and Science. Provincial and municipal authorities have relatively few powers. In line with similar developments in many other countries, the Netherlands is moving away from regulation, by redefining the role of central authority in terms of objectives and standard-setting, and by giving institutions increased autonomy over financial management.

Reform of apprenticeship training, in the early 1980s, was followed by a comprehensive government review of technician-level education (MBO). Among the aims is the creation of fewer and larger MBO schools; they are to have an average of 3,000 students, which will reduce their number from 720 to about 150. This is partly due to the decline in the birth rate, but it also reflects the desire to bring about greater possibilities for movement between different types of courses and vocational areas.

Other aims of the review are to give these schools institutional autonomy — revising their legal status, funding basis and (it is hoped) encouraging enterprise — and to stimulate innovative approaches to teaching and learning in an attempt to reduce high drop-out rates. An experiment with short modularised courses began in the late 1980s and there are plans for a less rigid four-year programme of vocational studies.

Developments and issues

Secondary education has been in a state of suspended reform for more than two decades. There is evidence that the current system, in forcing people to make academic, general and vocational choices at the end of primary schooling, reinforces social inequality, not least due to the reluctance of parents to have their children placed in the vocational stream. The failure to achieve reform has acted as a damper on innovation, while laying an insecure foundation for education and training after 16.

As the Organisation for Economic Co-operation and Development reported in 1991: 'LBO is an increasingly isolated stream that serves primarily students who have no other options and produces an alarming number of students who leave the system with no marketable skills. Statistics indicate that unemployment is higher among

LBO completers than among those who drop out of other streams with no qualifications at all, and the apprenticeship system, into which LBO pupils are supposed to flow, is increasingly drawing on graduates from other, higher streams because of the weaknesses in LBO candidates.'*

The root of the problem has been the failure to gain support for structural change. After extensive debate, in 1975, the government proposed the introduction of 'all-in' comprehensive schools as in Britain. There would be differentiation between pupils in the classroom, but all would be taught the same subjects. In the event, 15 experimental schools were established. Deadlock then ensued until a government advisory committee reported on 'basic education' in 1986. This shifted the focus from structure to content.

The direction of policy is now toward the introduction of a three-year programme of basic education in all secondary schools. This would feature a core curriculum accounting for 80% of teaching time and 14 subjects to be studied by all students. LBO would then become more pre-vocational by nature and include periods of work experience or practical training.

In contrast to LBO, parents strongly favour vocational options post 16, and demand for places has grown considerably. There are concerns, however, about the flexibility of upper secondary programmes and the extent to which MBO is co-ordinated with apprenticeship. Similarly, HBO and university higher education are still very separate systems, and attempts to give them a measure of parity have run up against problems of transfer and equivalence and status.

Following consultation between the government, employers and others, the number of apprenticeships doubled over a four-year period during the mid-1980s. To further strengthen this form of training, a national steering committee with tripartite consultative bodies for each vocational sector (made up of representatives of employer associations, labour unions and vocational education organisations) has been set up to advise on the structure and contents of courses.

Other current issues concern the need to introduce quality control; to stimulate a more entrepreneurial and market-responsive approach to higher and secondary education; and to introduce information technology as a basic element of vocational education.

* *Reviews of National Policies for Education, Netherlands*. Published by OECD, 1991.

The economy

Between the late-1950s and early-1970s gross national product rose on average by six per cent a year and national income doubled in real terms. But, for a decade from 1973, the economy stagnated in the wake of the oil price crisis. Unemployment reached 17% in 1983. Since, there has been an export and investment-led recovery supported by policies of reducing taxation and public spending.

ENGLAND AND WALES

Background

Compared with most industrialised countries, Britain has until very recently paid scant attention to education and training for work, excepting that for the professions. Historically, this is illustrated by the lack of development in the technical-vocational stream in secondary education, the restriction of school-leaving qualifications to academic subjects, and the slow recognition on the part of government of a public planning role in industrial training, including apprenticeship.

Junior technical schools, introduced in 1905 'to prepare pupils either for artisan or other industrial occupations or for domestic service', were not brought into the secondary education system until the 1944 Education Act (25 years later than in the Netherlands, for example). While this envisaged a tripartite system of academic, general education and technical-vocational schools, at no time were more than five per cent of the age group enrolled in the last of these, compared with 20% in grammar schools and 75% in secondary modern schools. This stands in marked contrast to Germany, where the present split between these streams is 30-30-40 in favour of the technical and vocational element.

The only school-leaving qualification until the mid-1960s was the academic General Certificate of Education (at Ordinary level), designed for the top 30% of the ability range. The introduction of the Certificate of Secondary Education (intended for the middle 30%) and its subsequent amalgamation with the GCE to create the General Certificate of Secondary Education (GCSE) in the mid-1980s, together with the raising of the school leaving age to 16 in 1973 and gradual replacement of the tripartite system with unified comprehensive schools between 1965 and 1980, all helped to increase the number of students gaining qualifications. They did not, however, significantly assist the growth of technical and vocational studies within the curriculum. By 1990, only one student in eight completed compulsory schooling with a qualification in technology and only one in 14 with one in business studies.

Similarly, it was not until the 1963 Industrial Training Act that government accepted the need for a public sector approach to training, in the process creating the industrial training boards. It was only in the early 1970s with the establishment of the Business Education Council and Technician Education Council (since amalgamated as the Business and Technology Education Council — BTEC) that a wide range of non-craft vocational courses were introduced into further education.

The legacy of this history has been a high proportion of students leaving school without any qualification and a low post-compulsory participation rate (see Table 6, p.34). The 1944 Education Act provision that all young people stay in full-time education or attend part-time in further education until the age of 18 — the requirement in Germany — was never implemented; the vision of the 1959 Crowther Report on the education of 15- to 18-year-olds that, by 1980, at least half of all leavers should stay in full-time education until the age of 18 has still not been realised (in 1989-90 the figure was 38%).

The situation has improved, however, both in terms of attainment and participation. In 1988-9, 30% of boys and 34% of girls (in England) achieved five or more GCSE passes (grades A-C) as against 23% and 24%, respectively, a decade earlier. Only one student in eleven completed compulsory schooling without gaining any qualification (the same as in Germany), compared to 13% in 1978-9 and 44%

in 1970-1. In 1990 53% of students continued in full-time education compared with 45% in 1985.

Reforms underway since the mid-1980s are not only the most sweeping ever attempted of the education system in Britain, but more comprehensive than anything as yet proposed in another country.

Vocational education and training

Nine out of ten 11- to 16-year-olds attend schools administered by local education authorities (LEAs). The majority of the remainder attend either private schools or those directly funded by central government. A reform of the curriculum within a national framework began in 1989 and is due to be completed in 1997. Until then, what is taught will continue to vary considerably between LEAs and, within them, between schools.

In general, students study the same subjects until the age of 14. They then follow two-year syllabuses leading to GCSE examinations in selected subjects. This involves choices, which may lead to the dropping of certain subjects, such as geography, a foreign language, history or one or more of the sciences. Conversely, it may mean the start of studies in new subjects, such as computer studies or business studies.

The proportion of students who currently sit GCSE exams thus varies considerably between subjects, and partly for this reason attainment — achievement of an A-C pass grade — is low by some international standards. The percentage attempting examinations and attaining qualifications (figure in brackets) is as follows in these subjects: English 90 (45); maths 86 (34); French 41 (21); biological studies 35 (16); physics 32 (16); technology 31 (12); chemistry 29 (15); business studies 18 (7); German 12 (7) and computer studies 11 (4).

On completing compulsory schooling, 53% of 16-year-olds continue in full-time education, although this varies considerably by region: from 60% in outer (suburban) London to 44% in the North East. Of these, two-thirds attend schools or sixth-form colleges and one-third enrol at further education colleges.

In schools, students take specialised two-year academic courses (A levels, which are the established pre-entry qualification for higher education equivalent to the *baccalauréat* and the *Abitur*), or seek to gain further GCSE passes. One in five A level students also takes Advanced Supplementary (AS level) courses, which were introduced in 1987 to broaden the studies of sixth forms. A small number pursue the Certificate of Pre-Vocational Education. In further education colleges, students have the additional option of vocational courses, validated by BTEC, City and Guilds of London Institute (CGLI), Royal Society of Arts (RSA) and similar bodies. (It is currently proposed that schools too should be able to offer BTEC First Diploma courses.)

Of the 47% of 16-year-olds who do not continue in full-time education, by far the majority (slightly more than three in five) enter Youth Training — a two-year programme of part-time study and work experience. Nearly one in five begin jobs which include training (including apprenticeship), and the remainder enter jobs without training. Regional variations are even sharper among those not continuing full-time studies: in outer London six per cent of 16-year-olds enter Youth Training compared with 35% in the North East.

In 1989, 2.2 million students were enrolled in further education — a figure projected to rise to 2.9 million by 2000 — and of these, 80% attended part-time. On the

continent, colleges and schools in further education are often small and monotechnic, while in Britain further education colleges are general as opposed to specialist, and only one in four has fewer than 1,000 students (40% have more than 2,000). In broad terms, one-fifth of enrolments are on business and financial studies courses with an equal proportion on engineering and technology courses, and on multidisciplinary studies courses.

In contrast to Germany and the Netherlands, apprenticeship in Britain has been declining for several years. Taking its place has been Youth Training (YT) — a scheme similar to the employment contracts in Italy, although more restricted in terms of trainee age. Introduced in the late 1970s as a short-term measure to alleviate unemployment, it has been strengthened and extended from one to two years. Currently, 15% of 16- to 18- year-olds take part in YT, although fewer than half achieve any qualifications.

Reform

The current programme entails the implementation of reforms until at least 1997. It has a number of focuses.

Content and standards in compulsory schooling

The aim of the National Curriculum, which is being introduced over an eight-year period from 1989, is to provide a 'broad and balanced curriculum' for all pupils in compulsory schooling. It requires nine foundation subjects to be taught at a nationally defined standard to all 5- to 16-year-olds, with a tenth (a modern foreign language) for 11- to 16-year-olds. Core subjects include English, mathematics, and science.

There is no specification as to how much class time should be devoted to the ten subjects, individually or collectively, nor are they regarded as a complete curriculum. Schools may offer other subjects and are expected to provide for cross-curricular activities, including careers education and guidance. Attainment targets for the foundation subjects, however, set down the range of knowledge, skills and understanding which pupils are expected to master as they progress through school. There is also to be standardised national testing at the end of the first three key stages of the curriculum, at ages seven, 11 and 14. Programmes of study set out the essential content, skills and processes which need to be covered by pupils at each of these stages.

The final stage (key stage four) comprises the last two years of compulsory schooling and culminates in standardised examinations (the General Certificate of Secondary Education), offered nationally, in all the foundation, as well as other, subjects.

Greater emphasis on technology

Preceding the National Curriculum was the Technical and Vocational Education Initiative (TVEI). This supports the provision of courses for 14- to 18-year-olds which focus on the 'world of adult and working life'. These emphasise a broad science curriculum, appropriate to all students, and work experience, and seek to promote business education and technology studies, including information technology. By 1990 about 80% of schools and colleges and 42% of the age group were involved in TVEI. There are plans to extend this to all 14- to 18-year-olds in full-time education by the early 1990s.

Support for the purchase of IT equipment now means that an estimated 80% of young people gain hands-on experience of computers at school. In 1991, there was one personal computer for every 18 students in secondary schools and one per 40 pupils in primary schools. At the end of 1991, the government launched another capital equipment programme — the Technology Schools Initiative — 'to help spread vocational technology teaching across a national network of secondary schools'. For 1992-3, £25 million has been allocated to fund equipment projects at 62 schools. Another initiative in this area is City Technology Colleges. These are corporate-funded secondary schools with a strong technology emphasis in the curriculum. Since 1988 nearly 20 colleges have been opened or announced.

Increased involvement of business

A central tenet of the government reforms is that stronger links between business and education will increase the vocational relevance of what is taught and learned. In turn, this will raise knowledge and skill levels in industry and commerce to the benefit of Britain's economic competitiveness. To this end several steps have been taken.

School-industry links have been encouraged. Ninety-one per cent of secondary schools had business representatives on their governing bodies in 1989, compared to 32% in 1986. In addition, 71% of students were involved in work experience placements during the final year of compulsory schooling and 65% during the penultimate year. The average placement lasts nine days and, in about half the schools, work experience counts towards assessment for GCSE course work.

The Compact Initiative, launched in Urban Programme (inner-city) areas in 1988, featured 55 compacts involving 300 schools and colleges, 92,000 young people and about 9,000 employers by the summer of 1991. The compacts are agreements between students, employers and schools or colleges, whereby young people agree to work towards negotiated goals in return for a job with training with local companies and organisations. The initiative is now to be applied nationwide.

Compacts are to be integrated into a wider scheme to formalise links between business and education — the Local Education and Business Partnership initiative, launched in 1991. This aims 'to co-ordinate all activities to link education and business at a local level'. Areas envisaged for 'joint working' concern the curriculum, work experience, the school-to-work transition, and professional development for teachers. Examples might include business personnel acting as mentors for individual students, work shadowing, providing practice in job interviewing techniques, and teacher placements in industry. About 100 partnerships were in operation by spring 1992.

The keystone of the policy to promote the involvement of business in education and training is the creation of TECs. These business-led organisations provide a national network of 82 agencies which have been given responsibility for the management of several government initiatives and funded programmes, including Youth Training, TVEI, Compacts and Local Education and Business Partnerships. Others include Employment Training — a programme for the long-term unemployed; training credits (see below); and WRFE, a scheme introduced in 1986 whereby LEAs had to devise strategic plans for vocational courses delivered through further education colleges, to receive a specific element of government funding.

Added to the reform of college government (see below), the sum of these changes is to shift a large measure of responsibility for the management of vocational education and training out of the hands of government and into those of business and the colleges themselves.

Another move to promote the role of business is the abolition of the industrial training boards, set up by the 1963 Act to co-ordinate training arrangements in 23 industrial and commercial sectors, together with their power to impose compulsory taxes (levies) in support of training. In their place the government is encouraging voluntary arrangements which are industry-led.

Training credits

Potentially the most radical change is the experiment in creating a market for training and educational services (such as counselling and guidance) through the use of credits. These are vouchers showing a money value, typically at least £1,000, which are issued to 16- and 17-year-olds entitling them to buy vocational education and training. Operated within the framework of Youth Training, the scheme re-routes public funding for initial training away from training providers, such as colleges, and through individual young people.

This switch, from a supply-side strategy to one which is demand led, is intended to increase young people's motivation to train, by making them purchasers of services which would otherwise be provided free, and to stimulate market responsiveness among training providers, including colleges. Another aim of the scheme is to promote company participation and commitment to training; as a result, employers can also be providers, in that they may organise training for employees with credits.

From April 1991 ten TEC areas (and one Local Enterprise Company area in Scotland) have been piloting training credits, making the vouchers available to about ten per cent of British 16- and 17-year-olds not in full-time further education. Current proposals are to extend the scheme to provide vouchers to buy skill checks — assessment and guidance on 'how to make the most of working life' — during 1992-3, and to make training credits available to all 16- and 17-year-olds by 1996.

A national framework of vocational qualifications

Since 1986, the National Council for Vocational Qualifications (NCVQ) has been working to establish a coherent and comprehensive for vocational qualifications. NCVQ does not create qualifications, but determines the criteria and levels of the framework which awarding bodies can use as a reference point for their qualifications.

The framework derived by NCVQ has five levels, a classification similar but somewhat more condensed to those adopted by the European Community and other other countries (see Table 5, p.33; Table 8, p35). Awarding bodies submit their qualifications for approval by NCVQ voluntarily. Qualifications which are accepted into the framework by NCVQ are 'hallmarked' as National Vocational Qualifications (NVQs).

To be acceptable to NCVQ, qualifications must be competence based, designed in unit form, free from requirements about the place or method of learning and appropriate to all age groups; and to ensure relevance to employment they must be based on national standards of occupational competence determined by bodies made up of employers and business interests. To this end, over 100 employer-led industry lead bodies have been set up to determine the standards of competence required for different occupations.

Government, the TUC, TECs in England and Wales and LECs in Scotland have all lent their support to the training targets set by the CBI, published in *World Class Targets*. These targets, fully supported by NCVQ, include:

- ensuring that by 1997 at least 80% of young people attain NVQ Level II or its academic equivalent in their foundation education and training;
- by the year 2000 least 50% of the age group should attain NVQ Level III or its academic equivalent;
- by 1996 at least half the employed workforce should be aiming for qualifications or units toward them within the NVQ framework;
- by the year 2000, 50% of the employed workforce should be qualified to NVQ Level III or its academic equivalent.

To hasten change further, it intends to use powers granted by the 1988 Education Act to require schools and colleges to offer only NVQs to students pursuing vocational options.

To supplement occupationally specific NVQs, new broad-based qualifications, to be known as General National Vocational Qualifications (GNVQs), will be introduced by September 1992. The intention is to recognise the desire of many young people to keep their career options open: they wish to study for vocational qualifications which prepare them for a range of related occupations, but not limit their choices too early, and to retain the possibility of moving into higher education.

GNVQs will offer a broad preparation for employment and for progression to higher education. They will recognise a range of skills, knowledge and understanding relevant to a vocational sector but not necessarily to a particular occupation. These qualifications will be related to both GCSE and A levels and NVQs (Table 5, p.33).

Equality of status

'The Government wants to remove the remaining barriers to equal status between the so-called academic and vocational routes. We want academic and vocational qualifications to be held in equal esteem.' (White Paper, *Education and Training for the 21st Century*, 1991)

To achieve this a new system of Ordinary and Advanced Diplomas has been proposed. These frameworks will recognise attainment in combinations of existing academic and vocational qualifications. The proposals are currently under consultation.

Institutional autonomy

In a development which mirrors that taking place in business, where the 'flat organisation' is becoming more prevalent, reforms have sought to redefine the roles of central, local and institutional government. While the former assumes greater powers and responsibility for creating a framework, setting targets and assuring quality, and institutions gain greater autonomy, the middle layer of administration — local government — has seen its role diminish.

By 1994 all schools will have schemes of delegated management. Meanwhile, polytechnics and higher education colleges were first brought under a co-ordinating national funding body (now the Polytechnics and Colleges Funding Council — PCFC) and then, in 1989, removed from local authority control in favour of self-government. Plans now are to merge the PCFC and the complementary funding council for the universities (the Universities Funding Council), creating a single overview body for all higher education — a development which will see the polytechnics renamed as universities.

Further education is now following suit. Legislation which received Royal Assent in the spring of 1992 removes both further education and sixth-form colleges from local authority control. From 1 April 1993, the colleges will be self-governing, and funded through two Further Education Funding Councils, one for England and one for Wales.

Continuing education and training

On the supply side, the aim is to make education and training as flexible and accessible as possible. Emphasis is being given to open and distance learning, credit accumulation and transfer schemes (CATS) and the modularisation of courses, the accreditation of prior learning and experience, and work-based learning. One development is that of a National Record of Achievement. Launched in 1991, this aims to provide 'a simple record, in summary form, of an individual's achievements in education and training throughout working life'.

On the demand side, a number of initiatives have been taken to promote employee training. These include the creation of an employer-led National Training Task Force; the launch of annual National Training Awards to recognise excellence; and the Investors in People initiative, which sets a national benchmark standard for training by companies and organisations. Career Development Loans have been introduced, and subsequently considerably increased, to enable individuals to finance themselves on vocational courses of up to one year in length.

The economy

In the two decades to 1973, economic growth was significantly lower than that of continental Europe at two to three per cent a year. In the decade after 1973 it fell to one per cent annually, but in the 1980s Britain experienced its longest sustained period of growth since 1945, averaging more than three per cent.

A major exporter of aerospace products, electrical equipment, machinery, chemicals and oil, Britain's trade is increasingly with other developed nations. In 1973 these accounted for about 73% of all exports and imports; in 1988 the respective figures were 80% and 86%. Over half of all trade is with other EC countries, and more than one-third of trade is with France, Germany, Italy and the Netherlands.

A smaller proportion of the work-force is employed in agriculture than in any other industrialised country, yet Britain is two-thirds self-sufficient in food. It is completely self-sufficient in energy.

Seven in ten people work in the service sector and only two in ten in manufacturing. Employment in services rose by 13% in the 1980s with the biggest growth in banking and financial services (up 49%). Self-employment in the period rose by 57%.

Working in Britain:

distribution of the work-force (1989, thousands)

Primary sector	**771**
Agriculture, forestry fishing	300
Energy and water supply	471
Manufacturing	**5,233**
Chemicals and man-made fibres	322
Metal manufacturing mineral products	346
Electrical and instrument engineering	735
Mechanical engineering 790	
Other metal goods	336
Motor vehicles and parts	268
Aerospace and transport equipment	219
Food, drink and tobacco	553
Textiles and clothing	529
Paper, printing and publishing	492
Other manufacturing	540
Construction	**1,062**
Services	**15,679**
Wholesale distribution and repairs	1,172
Retail distribution	2,256
Hotels and catering	1,123
Transport	910
Postal services and communications	451
Banking, finance and insurance	2,675
Public administration	1,650
Education	1,797
Health	1,484
Other services	2,161
Self-employed	**3,241**

Source: *Britain for 1991*, HMSO. The sectoral figures in manufacturing are for June 1989 and do not quite add up to the aggregate manufacturing figure for 1989 overall.

Table 4

National vocational qualification levels and national training targets

I Competence in the performance of work activities which are, in the main, routine and predictable. Equivalences: semi-skilled; pre-vocational certificate; National Curriculum.

II Competence in a significant range of varied work activities, performed in a variety of contexts. Some of the activities are complex or non-routine, and there is some individual responsibility or autonomy. Collaboration with others, perhaps through membership of a work group or team, may often be a requirement.

Equivalences: basic craft certificate; broad-based craftsmen foundation; GCSE.

Target: At least 80% of 16- to 19-year-olds to attain this level or its academic equivalent by 1997 (currently 45%).

III Competence in a broad range of varied work activities performed in a wide variety of contexts most of which are complex and non-routine. There is considerable responsibility and autonomy, and control or guidance of others is often required.

Equivalences: technician; advanced craft level; supervisor; vocationally related National Diploma; advanced craft preparation; GCE A level; AS level.

Target: At least 50% of 16- to 19-year-olds to attain this level by 2000 (currently fewer than 30%). Also, 50% of the employed work-force should be qualified to this level or its academic equivalent by the turn of the century (now about one-third).

IV Competence in a broad range of complex technical or professional work activities performed in a wide variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources is often present.

Equivalences: higher technician; junior management; vocationally related degrees; Higher National Diploma; degree.

V Competence which involves the application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources feature strongly, as do personal accountabilities for analysis and diagnosis, design, planning, execution and evaluation.

Equivalences: professional qualification middle management; vocationally-related postgraduate qualifications; higher degree.

Note: National training targets were set by the Confederation of British Industry but have been endorsed by the government. The targets given above are but three of the 'foundation targets'; the overall list is comprehensive. Equivalences show the correspondence between (in order) occupationally specific NVQs, General NVQs and academic qualifications.

Source: Definitions of NVQ levels and equivalences in the White Paper *Education and Training for the 21st Century*, Vol. 1 May 1991.

Table 5

A qualified work-force?

Qualifications by occupational group in England (1990)

	Degree or equivalent	A level or equivalent or others via higher education	Any other qualifications	No qualifications
Managerial/professional	27 (26)	42 (42)	20 (17)	11 (14)
Clerical and related	3 (3)	25 (21)	55 (52)	16 (24)
Other non-manual	3 (3)	25 (22)	42 (38)	29 (36)
Craft and similar	1 (1)	55 (53)	18 (14)	25 (31)
General labourers	0 (0)	13 (9)	27 (19)	58 (70)
Other manual	1 (1)	20 (17)	31 (22)	47 (58)
All occupations	10 (9)	34 (32)	30 (25)	25 (33)

Notes: The second column includes those having taken higher education courses involving less than three years' time-time (or equivalent) study, i.e. sub-degree level. Zero figures denote fewer than one per cent. Figures in brackets are for 1985. All figures relate to the percentage of men aged 16-64 and women aged 16-59 in employment, self-employment or on training schemes such as Youth Training and Employment Training. The 1990 figures are preliminary estimates based on that year's Labour Force Survey.

Source: Labour Market & Skills Trends 1992-3, Skills and Enterprise Network of the Employment Department, 1992.

Table 6

Participation of 16- to 18-year-olds in education and training

		Full-time	Part-time	All
France		66	8	74
Germany		47	43	90
Italy		47	18	65
Netherlands		77	9	86
United Kingdom	1986	33	31	64
	1988	35	34	69

Notes: all figures are percentages; those for continental countries are from 1986. German figures for former Federal German Republic.

Source: Social Trends 21, Central Statistical Office, 1991.

Table 7

Training levels of the European Community

Training was defined at five levels by the Community in 1985.

1. Compulsory education and professional initiation.

   This professional initiation is acquired at an educational establishment, in an out-of-school training programme, or at the undertaking (work-place). The volume of theoretical knowledge and practical capabilities involved is very limited.

   This form of training must primarily enable the holder to perform relatively simple work and may be fairly quickly acquired.

2. Compulsory education and vocational training including, in particular, apprenticeships.

   The level corresponds to a level where the holder is fully qualified to engage in a specific activity, with the capacity to use the instruments and techniques relating thereto.

   This activity involves chiefly the performance of work which may be independent within the limits of the relevant techniques.

3. Compulsory education and or vocational training and additional technical training or technical educational training or other secondary-level training.

   This form of training involves a greater fund of theoretical knowledge than Level 2. Activity involves chiefly technical work which can be performed independently and or entail executive and co-ordination duties.

4. Secondary training, (either) general or vocational, and post-secondary technical training.

   This form of training involves high-level technical training acquired at or outside educational establishments. The resulting qualification covers a higher level of knowledge and of capabilities. It does not generally require mastery of the scientific bases of the various areas concerned. Such capabilities and knowledge make it possible in a generally autonomous or independent way to assume design and or management and or administrative responsibilities.

5. Secondary training, (either) general or vocational, and complete higher training.

   This form of training generally leads to an autonomously pursued vocational activity — as an employee or as a self-employed person — entailing a mastery of the scientific bases of the occupation. The qualifications required for engaging in a vocational activity may be integrated at these various levels.

Source: *Official Journal of the European Communities*, No. L 199/59, issued 31 July 1985 (words in brackets added).

Table 8

TRAINING IN FOUR EMPLOYMENT SECTORS

CONSTRUCTION

Reduced growth, increased competition

Annual growth in construction output slackened throughout Europe in the late 1980s. European Commission figures for the period 1988-90 report a decrease in the rate of growth from 11% to one per cent in the Netherlands; from 5.8% to 2.3% in France; and from 3.7% to 2.7% in Italy. For the UK the equivalent figures were seven per cent and 1.5%. In the former Federal German Republic (FDR) annual growth dipped from 4.5% to 3.5%. Reunification is expected, however, to create a boom in the German construction industry, and the housing budget for the former FDR area is predicted to increase from DM4.5 billion in 1990 to DM8 billion in 1993. Reduced growth and sharper competition, spurred in part by the Single European Market reforms, should stimulate innovation as companies seek to become more efficient and to define their market.

Small firms

The construction industry is characterised by small, sometimes very small, firms, although this is more marked on the continent than in the UK. In Italy over 90% of construction companies employ 50 or fewer workers and in France a similar proportion employs ten or fewer workers. Almost a half of German firms (48%) employ between 20 and 99 workers, compared with 28% in the UK. In all countries, however, large companies are responsible for the lion's share both of employment and output. For example, in France six per cent of firms account for two-thirds of jobs and production. In consequence, developments in training are mainly led by the needs of these large firms.

Fewer but more skilled jobs

The long-term trend is towards a net loss of jobs, although in the 1980s this was less evident in the UK than in mainland Europe. On average, between 1982 and 1989 the number of jobs in the industry fell by 0.6% a year in the UK compared with 2.8% in the Community as a whole. Smaller construction work-forces are resulting from factors such as new construction methods, the increased use of pre-fabricated components and the application of new materials. On the one hand, there is a declining demand for unskilled and semi-skilled workers and, on the other, an increased need for skilled workers able to work beyond the boundaries of a single trade, and for more technicians and supervisors. In Germany, demand for semi-

skilled and unskilled labour has decreased by around 60% over the last 20 years, and the ratio between skilled and unskilled workers has changed from 10:7 to 10:3.

Recruitment

Construction remains a major first-time employer for young male school leavers and the unemployed. In France, it recruits nearly 16% of all school leavers, as against the industry's seven per cent share of the overall jobs market, and school leavers and the unemployed combined account for three-quarters of construction recruits. In Italy, where employment training contracts were introduced in the mid-1980s to tackle unemployment, one in five entrants to construction now comes through this route — in part, perhaps, due to the attraction of these contracts to small firms.

Despite the shrinking size of the labour force and the changes in skills needs that it reflects, employers complain about the poor image of the industry and their inability to recruit 'high quality' entrants. It is estimated that in Germany ten apprentices are needed for every 100 skilled workers if equilibrium in skills supply and demand is to be achieved. Yet this level of training has not been reached since the early 1960s, when high birth rates last exerted sufficient pressure on the labour market. The number of apprentice bricklayers and carpenters in (Federal) Germany was halved during the 1980s, and apprenticeship places in construction trades consistently remain unfilled. Also, turnover can be high. Forty-four per cent of young French recruits leave the industry within five years compared with the 25% who do in manufacturing.

Skill trends

The strength of small firms in the construction industry is one guarantee of the continuing emphasis on traditional skills. Moreover, given the steady growth in the number of small firms and the recent slowing of output, some small firms are having to increase their market specialisation into areas such as restoration, which require these skills at more technically advanced levels. Competition is also causing small firms to pay greater concern to cost control and customer service, and, as sub-contractors to larger firms, they are facing pressure to conform to 'quality' standards.

In larger firms, which have led the way with the use of new technology, new materials, the industrialised manufacture of components (including prefabrication) and more sophisticated site management techniques, the rising demand is for technicians, including building draughtsmen, supervisors (site assistants) and multiskilled craftsmen. For example, the bricklayer who does nothing but lay bricks, the rule in former times, is now less common. In addition to laying bricks, he may now be required to work with concrete, including bending and fixing reinforcement and preparing simple shuttering, to lay tiles, fix prefabricated units and carry out rendering and plastering. Traditional training, based on narrow crafts, is no longer suited to provide knowledge and skills of this scope.

Other developments which are affecting the industry and carry implications for skills include increased mechanisation and the application of information technology. The use of hand-held power tools is now commonplace, while instrumentation, diagnostic equipment and non-destructive testing are being used increasingly in engineering construction and building services. Heavier equipment which was once restricted to large projects, such as lifting and materials handling plant, has spread to all parts of the construction sector. In addition, mechanisation is

entering a new phase with the advent of 'construction robotics' — the application of micro-electronic control systems to plant and equipment. In future, skilled workers will be expected to operate computerised machines. Another aspect of information technology is its increasing installation in buildings, and this, in common with other developments in the industry, has greatly increased the need for health and safety training.

Co-ordination of training

The organisation and nature of the construction industry pose a challenge of co-ordination in many countries. The predominance of small firms and the industry's customary heavy reliance on unskilled and casual labour have, among other things, hindered the widespread acceptance and use of qualifications. In a 1986 survey of French firms, the Centre for Study and Research into Qualifications noted, for example, that site managers generally had no idea what training their workers had received, or whether they had any qualifications; what mattered was simply 'how well they did the job'.

Good co-ordination is necessary if education and training arrangements are to meet the changing needs of the industry. Among other things, there is a need for better labour market information and for agreement on what qualifications should exist, at what levels, and what these should say about competence.

Several countries have taken steps to improve co-ordination. In Italy, a joint employer and labour union body (*Formazione E l'Addestramento Professionale Nell'Edilizia* — FORMEDIL) was set up in 1980 to promote and co-ordinate construction training initiatives nationally, working with the over 80 regional training centres that cater for building trades.

In the Netherlands, a national steering committee (*Bedrijfstakagewijs Overslais Bedrijfsleven* — BOOB) was created by legislation in 1988 to plan the development of vocational education and training generally, and to advise government, and one sectoral consultative committee deals specifically with construction. Composed of representatives of employers, labour unions and vocational education organisations, it helps determine occupational skills profiles for the industry, compares existing curricula with these profiles and identifies the changes that are required, and develops new modularised training schemes.

BOOB's remit is similar to that of the *Bundesinstitut für Berufsbildung*. For a decade, this has had a key role in advising the Federal German government on which trades and professions require specific training arrangements within the *Dualsystem* of apprenticeship, and on what regulations should be adopted for these recognised occupations.

Role of apprenticeship

The last decade has seen a decline in construction apprenticeships in the UK. The arguments against them are many and include their association with 'time served', the fact that they do not necessarily lead to a qualification and are no guarantee of quality, and their relatively high cost.

In the countries studied, the extent to which apprenticeship is important to the construction industry varies: in Germany it remains the universal route to craft qualifications and a necessary first step to qualification as a *Meister*; in Italy, the use of one to two-year employment training contracts is increasingly popular, and

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apprentices now account for only two per cent of the industry's overall work-force and the requirement of a structured programme of on-the-job training and continuing studies has largely fallen into abeyance.

In France and the Netherlands there has been a recent general recommitment to the role of apprenticeship within vocational education and training. The number of Dutch apprenticeships doubled in the second half of the 1980s, and following legislation in 1987 (which recognised contracts for anyone aged between 16 and 25) current French plans are for an annual five per cent increase in apprenticeship places. In both these countries, importance has been placed on integrating apprenticeship into the post-school education system so that qualifications gained allow progression to technician-level and higher education.

Range of crafts

In general, vocational courses in the four countries studied retain a large element of traditional skills. There is, however, disagreement over what is seen (and planned for) as a specifically 'construction' trade. The Germans, for example, exclude stonemasons, whereas the Dutch do not (both countries exclude plumbers and joiners). Some jobs which in the UK are regarded as unskilled or semi-skilled — notably those relating to concrete work — are organised as skilled crafts elsewhere.

Germany recognises 14 construction crafts: bricklayer; concrete and reinforced concrete worker; fireplace and chimney builder; carpenter; plasterer; floor layer; tile, plate and mosaic setter; skilled worker in road construction; track layer; canal excavation engineer; well builder; pipe layer; insulation fitter; dry wall installer.

The Dutch building sector has nine: bricklayer; carpenter; concrete carpenter (formwork carpenter); concrete worker; steel fixer (concrete reinforcement); plasterer; oven, kiln and furnace mason; floor and wall tile layer; stonemason.

The grouping of occupations enables apprentices in related skill areas to gain an appreciation of work in a sector before specialising in a particular trade. For example, there might be a common foundation year before introducing progressive specialisation, as in Germany. The aim, however, is to give a wider awareness of skills within the sector and to lay the basis for flexibility, and not to dilute skills. In relation to multi-skilling, the Germans would argue that trainees must first attain a high standard in one craft before attempting to master other techniques and forms of work.

Curriculum concerns

Early specialisation in school is coming under increasing criticism

Vocational courses such as those leading to the *certificat d'aptitude professionnelle* are increasingly felt to offer too many specialised options (overall the CAP provides for about 300). In France, 15 year-olds entering their final year of compulsory schooling and interested in working in construction are required to make an early choice between one of eight areas; these are structural building (masonry, carpentry and joinery), plumbing, heating, iron and metal working, electrical installation, joinery, painting and decorating, finishing and plastering.

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The need for a strong core of general education is being recognised

Changing work methods and practices are placing new emphasis on the need for trainees to acquire enhanced personal and communication skills — to be able to work in teams, to work flexibly, to take responsibility and to document assignments. They also need improved numeracy and scientific and technological understanding.

In all the countries the curriculum for construction courses contains a strong core of mathematics, the national language, and science and technology. In many cases, it also includes a foreign language.

Training courses are generally longer than in the UK

The duration of construction training programmes on the continent is generally in excess of that in the UK (also, in many cases, it is decided nationally, whereas in Britain only those courses designed by training organisations such as the Construction Industry Training Board and Building Engineering Services Training are subject to a national standard in terms of hours).

Typically the training time for a craft qualification at NVQ Level III is around 30 weeks (full-time) although there are no formal time restrictions in NVQs; in some other Community countries the trend is towards longer courses. Full-time diploma courses in Italy, now typically involving 32-34 weekly course hours, are being increased for some experimental courses to 36-38 hours.

Physical resources

Many further education colleges in the UK have set up 'project areas' in response to the requirements of off-the-job training elements of courses of the Construction Industry Training Board (CITB), and lately there has been the demand that NVQs be assessed under real work conditions. Changes in college funding arrangements, however, could jeopardise the future of these 'areas'. In addition, most of the government skills centres have been closed in recent years and good training facilities in the private sector are few.

In the countries studied, a greater proportion of vocational education and training takes places in industry or apprentice training centres. These are generally well resourced and may include residential accommodation for those living beyond daily travelling distance. They benefit from compulsory industry-wide training levies which range from one per cent of payroll in Italy, to between one and a half and two per cent in Germany, to 3.3% in the Netherlands. In Italy, there are about 80 centres for construction training run jointly by building employer associations and the industry's labour unions.

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Apprenticeship in France

- Policy and inspection under a single organisation — the national Ministry of Education.
- Managed for the ministry by a national co-ordinating committee, which provides careers and training information; develops training programmes; oversees the financing and work of apprentice training centres; and oversees the staff development of apprentice trainers, including those in companies.
- The committee's work is carried out through regional organisations which help match firms and prospective apprentices, and maintain a registry of training contracts. Regional joint employer-labour union associations manage local training centres.
- Companies contribute to the cost of training through a statutory apprenticeship tax and a voluntary training levy.
- Apprenticeships last two to three years. Apprentices spend between a quarter and one-third of their time at apprentice training centres, where they receive general and technological education as well as practical instruction in their trade. The trend is towards more time being spent in the centres, in part to promote the attainment of qualifications. There are 470 centres, of which 70 are exclusively for construction and a further 17 offer training for the industry alongside that for other sectors.
- Pre-vocational courses are available for 14- to 15-year-olds. Run in schools or at apprentice training centres, these include a period of work placement and provide an opportunity to decide on a suitable craft.
- A common system of vocational qualifications allows progression to higher-level studies. The most common qualification is the *certificat d'aptitude professionnelle*.
- Aims include a five per cent annual increase in the number of apprentices; four in five apprentices gaining a qualification; and more apprenticeships in other than very small firms (currently, 80% of construction apprentices are in firms with 10 or fewer employees).

Table 9

German training regulations in construction

Enacted as a statutory order in 1974, new regulations marked early recognition of the changing skills needs of the construction industry.

For the first time, 14 recognised trades were grouped in a single scheme comprising two stages. The first, covering the first two years of training, leads to three distinct vocational qualifications — in structural engineering, interior work, and civil engineering. The second, covering the final year, leads to specialist qualifications in each of the 14 trades.

Year one

All apprentices follow the same curriculum, comprising 20 weeks' training in industry-wide training centres, 20 weeks' attendance at a *Berufsschule*, and 12 weeks of in-company practical work.

In some *Lander* there are plans for this basic year to be entirely school-based, with the practical work element comprising five weeks engaged in one of four groups of activity — stone construction, concrete construction, timber construction, and a miscellaneous group including civil engineering, general construction technology, metal construction and synthetic materials construction.

Year two

This is composed of three months spent in training centres and nine months in firms and *Berufsschulen*, and leads to an intermediate examination.

The purpose of the period in a training centre is to extend basic vocational training and allow for initial specialisation. For example, the civil engineering group comprises road construction workers, pipe layers, canal excavation engineers, well builders and track layers.

Regulations governing time spent in training centres (during the first two years of apprenticeship) define 20 curriculum elements, each weighted in terms of the amount of time that might be required. These elements specify items such as 'basic skills in the processing and end-processing of synthetic materials', 'production of simple timber combinations, shutterings and moulds' and 'production of simple structures from synthetic stones and plates'.

During the nine months not spent in training centres, four days a week are spent in work and one day in school.

Year three

This generally comprises 11 months spent on company-based training and one month at a training centre (this may vary between *Lander*; some also carry on a 'school element' into the third year). In conclusion, trainees sit a journeyman examination in one of the 14 crafts.

Table 10

The Dutch Foundation for Vocational Training in the Building Industry

Traditional methods of teaching and assessment in bricklaying and carpentry were replaced in the late 1970s by a system of practical and theoretical modules called the *Herziening Opleiding en Exameris* (HOE) Project.

The main features are:

- integration of on-the-job training with theory taught at apprentice training centres;
- students working through learning modules at their own pace, with an average duration of two years;
- continuous assessment for each module;
- work-based assessment (for example, an apprentice carpenter would be asked to construct a dormer window).

The HOE Project is an example of the role in curriculum development of the *Stichting Vakopleiding Bouwbedrijf* (SVB) — the Foundation for Vocational Training in the Building Industry (in effect, the Dutch CITB).

The SVB is responsible for the nine Dutch construction crafts.* Its activities are funded by a 3.3% (1989) compulsory levy on the payroll of all building contractors. Subsidies are paid to employers who provide training. This is not confined to basic craft and technician courses but includes continuing education and updating, and supervisory and management training courses (supervisory training is accredited by the SVB).

Other key points about the SVB are:

- It facilitates co-operation between contractors in the regions, so that firms can work together to assure long-term training opportunities. Most of these employer groups run a training workshop, where apprentices can learn basic skills under qualified instructors (employed by the workshop). This enables training to be continued if there are no openings with any of the contractors. Most of the time, however, trainees are hired for a small charge by firms within the group, and they work and receive training on site.
- It co-ordinates on-the-job assessment in collaboration with employers and apprenticeship training centres. For each trade, a number of skills and tasks are assessed on-site, involving the trainee carrying out an actual task and being monitored by his or her 'master' and (or) an SVB training consultant.
- It develops open learning and other teaching materials for use in schools. This allows teachers to focus on learning strategies rather than the preparation of materials, and helps assure consistent quality nationally.
- It organises training for new building contractors as a prerequisite to trading. This is seen as helping to protect the public as well as assuring fewer business failures.

Table 11

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Third industrial revolution

The industries that rely on the skills of workers trained in the various uses and aspects of electricity have changed drastically in the last two decades. The introduction of electronics and the move away from electromechanical technology are parts of a process that has been called the 'third industrial revolution'.

The effects of information technology on automation in industry, new product development — not least in domestic appliances — and in transforming the telecommunications industry are well appreciated. The rate of change is dazzling: the first regular production of one-chip integrated circuits was as recent as 1971, and the first factory to use an electronic robot did so in 1980. Indeed, it is only 38 years — less than a working lifetime — since an electronic computer was first put to commercial use anywhere, keeping the accounts for J. Lyons & Co., the catering firm, in London.

Change in other areas is also important, notably the introduction of new and 'advanced' materials, such as fibre-optic cables (first used commercially in 1977), the adoption of new management methods and forms of work organisation, and increased competition. The mass production methods of the 'time and motion' school are giving way to those based on quality management, while governments are seeking to stimulate business efficiency through the single European market reforms and, in Britain, the privatisation of state-run utilities, including telecommunications and electricity.

Industry profile

The core industries with a demand for craftsmen and technicians in electrical engineering and related disciplines can be divided into five groups:

1. Power generation and distribution. The electricity industry in the UK employs 144,000 people — 15% of the nearly one million in the European Community. In the 1980s, UK production grew at a slower rate than on the continent, by an average of 2.1% annually between 1982 and 1989. This compares with 3.3% for the Community as a whole, and is reflected in jobs, which declined by an average 1.6% a year during the period in the UK whilst increasing by an equivalent 0.6% in the Community.

2. Electrical components

3. Electrical consumer goods

4. Telecommunications equipment. The UK market for electronic components is predicted to grow faster than that of any other European country in the early-1990s. Sub-contracted assembly for US and Asian companies wanting a toe-hold in the post-1992 European market is one area in which UK companies are expected to find significant opportunities. In 1990, the UK accounted for nearly 19% of Community sales (total US$30.3 billion). In the smaller electrical consumer goods market, worth £10.25 billion (1988), the UK's share was nearly 21%.

In both these industries, and in the manufacture of telecommunications equipment, firms are predominantly large. In Italy, 40% of workers are in firms with more than

1,000 employees and, in the domestic appliance field in France, 20 firms account for 80% of jobs, each employing on average nearly 2,000 workers.

The trend is towards concentration — fewer firms — and many fewer jobs. The French appliance industry, for example, lost 17% of its jobs in only four years in the mid-1980s. In electrical components and equipment manufacture in France, in which firms with more than 500 employees account for five in seven jobs, employment overall fell by six per cent in the late 1980s.

The European market for telecommunications equipment is not as big as that for electronic components generally, but it has been growing faster, both in the UK and the Community as a whole — by about 4.2% annually on average between 1982 and 1989. Community sales in 1990 were worth US$19.4 billion, of which the UK's share was 16%.

Overall, 748,000 people were employed in electrical and instrument engineering manufacture in the UK in 1988.

5. Telecommunications services. A million people in the Community work in this sector, a quarter of them do so in the UK. By 1990, the value of Community production had risen to £52.7 bn., of which the UK's share was nearly 22%. This is predicted to increase annually by an average seven per cent and by 7.8% in the UK.

Implications for skills.

Although production is growing, employment is not. Workers will have to become increasingly more productive if companies are to prosper. In part, this will depend on the amount of capital investment in new technology. In Italy, for example, where electronics-led investment in the industry tripled in the first half of the 1980s, productivity in terms of added value per employee rose five-fold between the mid-1970s and the mid-1980s, and turnover per employee rose seven-fold.

Increased productivity also hinges on the extent to which there is a sufficient supply of newly trained skilled staff; much depends on the ability of countries including France and the UK (but not Germany and the Netherlands) to improve the recruitment of talented young people — of both sexes — into engineering.

Improving and updating the skills of those already in the industry is also essential. Existing qualification levels are often low; in France, for example, only 43% of those doing skilled jobs in electrical and electronics manufacturing have even the basic CAP or BEP vocational qualifications.

The introduction of electronics and new forms of work organisation are challenging established occupational classifications and (narrow) skill definitions. Distinctions between so-called 'traditional' crafts (scarcely older than the century) and the industrial skills of the mass production era will be increasingly hard to hold, as skill levels improve and multi-skilling becomes more common.

Overall, the industry will see fewer unskilled workers, fewer 'blue collar' workers engaged in routine assembly work, more multiskilled teamwork and greater responsibility on the part of individual workers for quality, and more supervisory, technical and maintenance staff. Also, more of those with electrical engineering qualifications will work for companies and organisations in the services sector.

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Implications for education and training

Technology and vocational courses in school

The need to assure a sufficient supply of young people into engineering generally, and non-civil engineering in particular, requires strengthening the teaching of technology in schools and in improving the status of technical and vocational studies in relation to academic courses. Part of the problem is cultural: in France and the UK there is a long-standing antipathy to commerce and manufacturing versus the professions, whereas in Germany it is notable that one in six attaining the *Abitur*, which is roughly equivalent to the British A level qualification, subsequently enters an apprenticeship. Parity of esteem between different streams in upper secondary education is being assisted in a countries like France and Italy by clear progression routes from vocational courses into higher education.

General education in the vocational curriculum

Raised skill levels and new working methods put a premium on a firm foundation of general education. Mathematics, science, 'mother tongue' and a foreign language appear to be given greater prominence in the vocational programmes of continental countries than in those in the UK. This may be assisted by the fact that subjects, such as mathematics and science, are taught separately rather than being integrated with the engineering syllabus and taught by engineering staff. Particularly noticeable is the extent to which the UK lags behind its continental neighbours in the teaching of foreign languages. For example, the weekly timetable for studies leading to the French *brevet d'études professionnelles* (BEP) in electronics requires that one-third of class time be devoted to general education, of which four hours are for maths and physics, three hours for French and two hours for English as a foreign language (the other two-thirds of the timetable are equally divided between the study of electrical and electronic principles and of electronics applications).

Vocational specialisation

The trend towards multi-skilling requires a broader approach to the curriculum in the initial stage of vocational training. This has been recognised by reforms in upper secondary technical education in the Netherlands (Table 12, p.52) and the introduction, in France, of multidisciplinary courses which effect links between electrical, electronic, mechanical and automation aspects of engineering. In Germany there has been a severe reduction of the number of industrial (as opposed to craft) engineering qualifications — from 42 to six — for which there is now a common first year followed by progressive specialisation.

Curriculum development, design and delivery

The pace of change in applied technology necessitates quick curriculum development. Key words are flexibility and responsiveness. In this, the UK, with its closer links between colleges and local industry and its more frequent use of innovative learning strategies, is generally well ahead of the rest of Europe, where course structures are more rigid and delivery methods less diverse. This is particularly true of Germany, which has experienced problems in reforming arrangements for electrical engineering within the *Dualsystem*. Modularisation has started in the Netherlands and in France, but not in Germany; also the use of open and distance learning is generally much more limited than in the UK.

Continuing education and training

The decline in the number of young people available to enter employment underlines the need for extensive provision for continuing education and training. This should allow the broadening of expertise as workers require a wider range of skills, the updating of knowledge and skills in line with changes in technology, and progression to higher skill levels — for example, the attainment of 'skilled' status by the semi-skilled. In addition, there is a need for alternative routes to vocational qualifications by adults. Again, practice in the UK is ahead of that in most other countries except in one respect: the widespread use of tax concessions for continuing education and training.

Qualifications

In France, Germany and the Netherlands vocational qualifications are not only held in high esteem, but they are very widely recognised and understood in much the same way that employers and parents understand O-levels/GCSE and A levels in the UK. In part, this reflects the longevity of qualification titles in other countries. For example, the CAP in France has been awarded since the 1920s, and it was notable that when the French chose recently to introduce a new technician-level vocational qualification in upper secondary education they called it a *baccalauréat*.

It also reflects greater central government direction over the system of qualifications, as well as standardisation. Training regulations leading to apprenticeship qualifications in Germany's *Dualsystem* include what are, in effect, statutorily enforced national curricula.

Traditional academic qualifications, however, continue to be the yardstick by which competence to practise is measured. There is still a widely held view in continental Europe that a single qualification, usually gained by way of a traditional 'grouped' course, leads to a particular job or specific vocational area for life. Vocational certificates and diplomas are primarily seen as entry-level qualifications for young people. The emphasis is on the process and duration of learning, rather than on specified outcomes; assessment is largely by examination; and in some countries — Germany and the Netherlands, for example — there are no effective arrangements for accelerated programmes or transfer with credit.

In Germany, semi-skilled engineering jobs are done by people trained in other trades — whose skills are thus 'wasted' — or by unskilled immigrants. The car factories have been said to be the biggest bakeries — employers of skilled bakers — in Germany. There are no national qualifications for semi-skilled work and no progression to skilled status, except by serving time in the *Dualsystem*.

The French and Italian systems are more progressive. Bridging qualifications, typically requiring an extra year's study, enable French students to switch to a higher channel, while in Italy vocational institutes offer three-year programmes, leading to regional qualifications, which can be extended by two years to achieve the same national qualification — the *maturità* — as that of the technical institutes' five-year programmes. The *maturità* and French *baccalauréat* both give automatic entry to university.

The importance of electrical skills to the economy — not only the electricity and electrical goods and services industries but throughout industry, commerce and the public sector — is reflected in the large numbers pursuing qualifications. In

Germany, there are about 150,000 apprentices in electrical trades, while in France one in five of all young people on industrial training courses are seeking qualifications in this field, second only to the number on mechanics' courses.

Given these numbers and the significance of the technological changes occurring in the sector, a lot of attention has been paid during the last two decades to making sure that curricula and qualifications continue to serve the purpose employers would expect of them. This, however, has not been easy. As the decade it took to achieve reform in Germany illustrates, centrally-directed systems move slowly. The need to achieve consensus in tripartite negotiations can run into some formidable obstacles — the distinction between traditional craft and industrial skills, and linkage between occupational classifications and collective bargaining on wages and salaries.

Rationalisation and change: two examples

France

Occupations. Until 1975, occupational grading in the electricity and electrical goods and services industries was the same as that used in the metals industry. This had become very complex and difficult to manage; as a result, firms had been obliged to draw up their own in-house classifications. The system needed reform to reflect growth in the industry, to overcome rigidity and encourage occupational mobility and progress, and to differentiate between levels of unskilled and semi-skilled workers in mass production factories.

In a new agreement, all categories of worker were divided into five levels, defined according to four criteria: autonomy (the scale and nature of control in the work hierarchy), responsibility (for work in hand including that of others), type of activity, and expertise required. Each level was further divided into five sub-groups, according to the complexity or difficulty of the work.

Although the unity of the framework is qualified by the fact that a barrier between executive and non-executive grades remains, the system has proved flexible, allowing for the co-existence in a single occupational and wages classification of those engaged in craft operations, workers in automated plants and those working in old-fashioned manufacturing and assembly factories.

Qualifications. The electro-technical *certificat d'aptitude professionnelle* (CAP) created in 1965 provided two main options: electrical fitter and equipment electrician, and three others — electrical fitter (motors, generators and transformers), fitter-cable layer, and low current and telecommunications fitter. In 1985, reflecting the growth in telecommunications and the need to provide a broader-based basic training, a separate CAP in low current and telecommunications installation was created and the other options amalgamated into a new electro-technical CAP. At the same time, a common element in electrical and electronic engineering was introduced into a range of other CAP and BEP courses.

The brevet d'études professionnelles (BEP) created in 1969 has four options: electrical fitter (which accounts for three in four students), equipment electrician, telecommunications and low current electrician, and electrical production and distribution electrician. These are being reformed along similar lines to the CAP. The first two options are being amalgamated and the third separated (the fate of the fourth has yet to be decided).

Other changes include the introduction of electronics into the electrical engineering curriculum of the technical *baccalauréat* in 1982 and the launch of a vocational *baccalauréat* in electrical equipment and installations, in 1987.

Germany

Training regulations for electrical trades in industry (but not the crafts), enacted in 1972, introduced a two-year foundation leading to 'skilled worker' qualifications in five vocational areas, followed by a one-year advanced stage leading to further qualifications in seven areas. Employers complained, however, that training for the initial qualification was insufficient, and curricula did not take enough account of technology developments.

Trade union and employer associations agreed on a reform, issued as 'Common Aims', in 1981. Training for the initial (and now single) qualification was extended to three years, with a one-year foundation followed by progressively more specialised training lasting at least two years. However, the two sides could not agree on designations of recognised occupations, the precise length of training or the syllabus.

In 1982, the *Bundesinstitut für Berufsbildung*, on behalf of the federal government, began tackling these issues with the help of various expert committees. These concluded that:

- there should be less significance attached to materials handling, connection techniques or producing windings and forming cables;
- increased weight should be given to the use of circuit diagrams, tables and manuals, the measurement of electric quantities, testing electric functions, assembly and repair;
- vocational colleges (*Berufsschulen*) should not try to inculcate knowledge that cannot, or can only rarely, be applied in companies (examples include electrochemistry, magnetic and electric fields, and semiconductor physics);
- syllabuses should take account of new technological developments, and greater emphasis be given to digital, measuring and control computer technology.

The committees also sought to systematise qualifications within a new occupational structure. Existing qualifications were assessed regarding their relevance within eight areas of technology:

1. electric machines
2. power installations technology
3. energy appliances technology
4. communication equipment technology
5. precision instruments technology
6. information technology
7. radio technology
8. telecommunications

They were also evaluated on their relevance to four areas of application: production (manufacturing, quality control and testing); assembly (putting into operation); service; and operational maintenance.

In 1984, employers and trade unions agreed on a new list of recognised occupations. They also decided training should extend to three and a half years, of which the first 18 months would feature a common syllabus. The new arrangements stressed the integration of skills and knowledge, so that the apprentice should be 'prepared for a qualified occupational activity which particularly includes having to plan, carry out and test work in an independent manner'. Framework curricula were developed for the *Berufsschulen*, examinations revised, and the new training regulations were brought into effect in 1987.

Concurrently, negotiations took place on a reform of training regulations for the electrical trades. This resulted in a large measure of harmonisation, including the adoption of a training period of three and a half years, and an 18-month common foundation.

The outcome has been a system of basic training covering the entire occupational field. Although the 'outline learning objectives' are phrased differently for each sector, the framework curriculum is the same. This has created a basis for exemptions in all electrical occupations for a college-based training year.

Upper secondary technical education in the Netherlands

This sector of education features 68 schools, with a further 17 'branch' schools dealing with a small number of specialised courses. Total enrolments, including students on work placements during their sandwich year, are 63,000 of which all but two per cent are male. Almost half of enrolments are on electrical engineering courses.

Existing system

The vocational programme is made up of three years' school-based theoretical studies and a one-year work placement (usually the third year).

The first year is a common foundation course covering the basic theory and practice of electrical engineering as well as general studies. A week of lessons consists of 12 hours of general education plus ten for practical work and eight for theory in electrical subjects.

For the second and final years' study, students specialise in one of four occupational areas: business methods, energy, electronics, and technical computing.

In the first two years students are periodically tested and there is continuous assessment. In the final year, students are examined in each of six subjects three times during the year. Those for mathematics and physics are national examinations, others are set by the schools, although each has to be approved by the government.

During the placement year, improvements are recorded in a student log. Assessment is based on the number of trainee days (minimum 200), a report by an industry mentor, and a report by the employing organisation (often more than one).

Reform

There are plans to introduce a new form of four year vocational programme, which instead of following a 'linear' approach to studies would develop through units, each of which would have a 'final value'.

The core unit would consist of three semesters (60 weeks/1,800 hours) of general education, and lead to qualification as a 'general electrical engineer'. Subjects would be offered in the form of modules. The first semester would be an assessment period, to ascertain the educational abilities of each student.

Building on this core unit would be a one-semester (20 weeks/600 hours) basic course in a first specialism, drawn from a list of four: electrical engineer, energy engineer, mechanical engineer, and computer engineer. Studies would be accredited and a certificate awarded.

After these four semesters, a first trainee period, known as 'subject training', would take place lasting 20 weeks. This should be a period in which the student can orientate himself/herself in relation to what has been learned and consider further his/her vocational direction.

Concluding this phase of broad education would be a 20-week period (580 hours) in which the compulsory subjects within the four branches of specialism are offered as modules. An intermediate qualification would then be awarded, as an electrical engineer, energy engineer, mechanical engineer or computer engineer.

There follows what is to be called the 'final profile stage', also lasting 20 weeks (580 hours), in which the student continues to specialise by studying theory in one of a number of 'profiles', such as: industrial electrical engineer, communications electrical engineer, industrial energy engineer, electrician, technical computer engineer, and commercial engineer.

To conclude education at upper secondary technical level, it would then be required to go through a second work placement of 20 weeks to acquire practical experience to complement the theory learned and to undertake a project.

Table 12

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MOTOR VEHICLE MECHANICS

Motor manufacture

Production of motor vehicles in the European Community rose steadily during the 1980s by an average of four per cent a year, while job numbers fell by an average of nearly two per cent a year. In the UK both trends were more marked, the equivalent figures being 5.5% rises in production and 4.5% decreases in jobs. About 1.8 million people currently work in the industry in the Community, producing 12.8 million vehicles a year. In the UK, nearly 1.3 million vehicles are produced annually, in an industry which now employs 240,000 people. A further 150,000 work in the manufacture of motor parts — a sector where job numbers fell somewhat more steeply in the 1980s — by an annual average of five per cent.

Structure of the sector

Relying on the production of vehicles and their accessories is a large network of wholesalers, agents, repair firms and retail outlets. In France, for example, the two national car manufacturing groups — Peugeot and Renault — include 280 wholesale branch operations and 4,200 dealers, and about 23,000 approved retail and service agents. There are also 1,300 independent wholesalers supplying car accessories, both to the approved agencies and to other firms. Added to this, there are the retail chains: the service stations, which often do more than sell petrol; the hypermarkets, which have branched out into quick service repairs; and the franchised outlets specialising in a single service, such as tyre changes and wheel-setting, lubrication, and fuel emission checks.

Overall, in France, an estimated 350,000 people work in the motor vehicle repairs sector, in between 50,000 and 60,000 firms, of which 80% have fewer than five workers.

Metal technology

As in the electrical trades, with which they have traditionally been closely associated, trades in the metals industry have been undergoing rapid and profound changes. If, in the past, skilled work lacked independence and was dominated by routine, workers today have to cope with comprehensive and complex activities, making high demands in terms of technical and social skills as well as personal responsibility. Thus, manual processing based on a division of labour has generally been replaced by machine processing and activities such as the assembly, installation, operational supervision, inspection and repair of machines, systems and plants.

In the motor vehicle sector, changes in technology are producing significant developments in several areas.

Electronics

Electronic components are increasingly used in car manufacture to monitor and control operational functions, such as petrol consumption, as well as to enhance the security and comfort of drivers and passengers. In commercial vehicles, practically all vital components are equipped with electronic regulating systems, relating not only to fuel supply but also to the gear box, air springs and brakes. In addition, electronic devices are used in testing and fault diagnosis, and works documentation is accessed and processed by computer.

High quality products

With the growing use of robotics and new materials in production, margins of tolerance in manufacturing are being reduced. This, allied to improvements in the quality of lubrication oils, has increased servicing intervals and reduced the need for repairs. The growing use of compact and separate groups of components means that these can be replaced in case of damage and are hardly ever repaired.

Wide spectrum of models

The flexibility of new-style production methods makes it possible to produce a wide range of vehicles and fittings for different markets. This has led to the use of different component groups and units in manufacture, and to an increase in the number of spare parts and accessories.

Other forces for change

Competition

The growth of retail chains offering specialised, often 'while you wait', services will put pressure on old-fashioned repair workshops to modernise their operations, improve the efficiency of the business, raise customer service standards and to re-define (and market) their strengths.

Consumer expectations

Motorists now expect greater certainty and sophistication in fault finding, and speedier and more reliable servicing and repair. They expect to be able to consult mechanics on safety and environmental aspects, and to deal with firms which have a clear and readily understood pricing policy (not one based on hours).

Government regulation

New requirements placed on car manufacturers and owners can play a decisive role in accelerating change, as can the introduction of new standards in Ministry of Transport vehicle testing and new rules governing the operation of commercial vehicles. The use of seat belts, air bags, tachometers (in long-distance lorries) and unleaded fuel are examples.

Implications for job functions

The developments described above are having several general effects on work-place functions, including:

- disappearance of old-fashioned repair work;
- increasing expertise in electronics;
- broadening of skill requirements;
- increasing use of computers;
- more attention to the supply logistics of accessories;
- greater emphasis on customer service.

These are affecting jobs at all levels, from works manager to service receptionist. For example, in the future, a mechanic will need not only practical skills but also knowledge of electronics and the ability to use equipment to measure and regulate. The most important tasks of a senior mechanic are likely to be those of tracing and correcting failures and of maintaining components equipped with micro-electronic systems. He or she will be need to be able to understand how such systems work 'functionally', to comprehend block and wire diagrams and to be able to interpret data from signal measurements. Mechanics will be required to have a high level of productivity; to understand the basic principles of conventional car engineering and motor electrics, so that with minimal supervision they can carry out the necessary maintenance and inspections efficiently.

Training routes and developments

In Germany and the Netherlands, relations between the motor industry and education tend to be longstanding and close, and the path to qualification as a skilled worker well trodden. In part this reflects the strengths of these countries' apprenticeship systems, but in the case of the Netherlands it is also aided by the country's size; for example, technician-level courses in motor mechanics can be concentrated in a single upper secondary school. An important benefit of these links and the high profile of apprenticeship is that trainees gain ready access to state-of-the-art equipment.

In Germany, students wanting to qualify for work as a motor mechanic must first seek an apprenticeship. They then follow a training programme within a framework laid down for all 17 of the recognised craft occupations in metal technology. This allows for one year's basic training of which 40 weeks are common to all crafts. The remaining 12 provide for initial specialisation in one of three broad groups — precision work engineering, installation and metal construction and engineering, and vehicle engineering. During the last two and half years of the apprenticeship there is further specialisation within these groups, enabling those in vehicle engineering to concentrate on work in the area of motor cars, commercial vehicles, or motor cycles. After qualification as a journeyman and some years' work experience, progression to *Meister* status is possible. Alternatively, skilled workers can take two-year *fachschule* courses and gain 'senior technician' qualifications or enter a university or polytechnic (*Fachhochschule*) on a degree-level engineering programme.

Obvious strengths of these arrangements include their application to all trainee motor mechanics throughout the country and their broad base within metal technology and vehicle engineering.

In the Netherlands, those wanting to become motor mechanics generally take a specifically designed four-year course of technical studies in the final years of compulsory schooling. Students can then progress to work as an apprentice mechanic, take part in short (two-year) technical courses at the upper secondary level (which also allow movement into apprenticeship), or go on to a four-year programme of technician-level studies at the Car Technical School in Apeldoorn. This four-year programme has a similar structure to that in electrical engineering (see Table 12, p.52 in the previous section). In addition, students qualifying from four-year mechanical engineering courses can take an additional one-year course in motor vehicle technology and gain a double qualification. In the Dutch apprenticeship system, a distinction is drawn between training for mechanics and electricians on the one hand, and body repair personnel on the other. Reforms under discussion would see the 'opening up' of apprenticeship through the modularisation of courses. This would improve links with higher education, assist the growth of continuing education and allow apprentices greater flexibility in programming their studies.

The situation in France and Italy is rather different. In the latter, there is almost no use of apprenticeship in the metals and mechanical engineering industries, although there is a small amount in related craft occupations. The major development has been the introduction, in the mid-1980s, of employment training contracts. These offer firms a reduction in social security payments if they employ 14- to 29-year-old school-leavers and the unemployed, and provide them with training. These contracts extend for no more than two years, however, and there is no guarantee either of a job or continued training afterwards. Moreover, the contracts, which are individually-negotiated between the employer and the trainee, do not specify the amount or content of training. Nonetheless, by 1987, the use of these contracts had grown so that they accounted for 40% of all recruitment to the metals and mechanical engineering industries.

In France, only 800 people a year qualify on motor vehicle technology courses beyond the level of the CAP and the BEP, and there is considerable complaint about under-qualification in the sector. The view is that, in future, motor mechanics must have training at least to level IV — two years in addition to the CAP and the BEP. There are also fears that without extensive arrangements for continuing education, craftsmen working in small, old-fashioned repair garages will soon find their skills obsolete. Another problem is the narrow skills base of the existing vocational courses. There are, for example, separate CAP qualifications in bodywork repair, bodywork construction and bodywork painting.

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Apprenticeship at Mercedes-Benz

Mercedes-Benz AG (Berlin) is a large main dealer which operates in-house training programmes which include basic vocational education.

Apprentice mechanics and body repair personnel work on practical aspects of their training on the workshop floor, while students training to be office personnel carry out tasks in the general office, the accounts section and service reception.

Attached to the workshop/office complex is an education centre where students spend between one and two days a week undertaking the academic requirements of their courses.

Apprenticeship lasts three and a half years, and starts when a contract between the company (co-signed by a *Meister*) and the trainee is approved by the local chamber of commerce, which ensures it complies with nationally implemented regulations. The contract is a binding legal document and is registered by the chamber.

In the first year of apprenticeship, mechanics and body repair personnel undertake a common programme of training, which involves the manufacture of set pieces as an indication of competence.

After 18 months — the end of the basic period of training — trainees sit an intermediate examination which is used to identify needs for the remainder of the apprenticeship. If a trainee is deemed not up to standard, the company can insist on increased attendance at the education centre to remedy weaknesses.

In the second two-year period of training, apprentices specialise in their chosen field. At the end of this they sit a practical examination and a theoretical paper to determine their suitability to be qualified as journeymen. If a student fails, he or she is allowed two further attempts and the apprenticeship can be extended by six months.

In the practical exam, three hours are allocated to the production of three examination pieces and five hours to the carrying out of five work samples. For the former, the exam committee takes into account only the finished product, whereas the latter includes an assessment of the procedure adopted. The written exam includes two two-hour papers — in technology and in work planning — and two one-hour papers, one in technical mathematics, the other in economic and social studies.

As the company is virtually an extension of the Mercedes-Benz factory, there are close training and staff development links between actual production, the workshop/office training complex and the education centre. Also, information on new product developments, including those not yet available on the market, can be built into basic technical training.

Table 13

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Training profile for motor mechanics in Germany

A training profile is laid down for each recognised occupation. It lists the areas of content training programmes have to cover. The framework training plan, which is incorporated in national training regulations, details those elements within the profile that are to be taught in-company. The plan is 'harmonised' in terms of contents and timings with the appropriate training curricula of the vocational schools.

The profile for the training of motor mechanics includes:

General

- induction to vocational training
- structure and organisation of training firm
- labour and bargaining law, employment protection
- industrial safety, environmental protection and energy conservation

Common to all metal trades

- planning and preparing work; controlling, testing and assessing products
- reading, applying and drawing up technical documents
- testing and measuring
- joining
- manual cutting and forming
- machining
- maintenance

Common to vehicle engineering

- welding and thermal cutting
- electrical engineering and electronics
- hydraulics and pneumatics

Specific to motor mechanics

- dismantling and assembling elements, units and systems in vehicle maintenance
- servicing of vehicles
- testing, setting and connecting systems and installations - mechanical, hydraulic, pneumatic, electrical and electronic
- testing of fumes and devices for the reduction of emissions
- localising and identifying faults, defects and their causes
- repairing systems and installations
- servicing, supporting and enclosing components and units on vehicles
- fitting and refitting of accessories and additional devices
- assessing damage on vehicles
- testing and controlling work done taking into consideration related areas

Table 14

Training levels in Italy

With the introduction of employment training contracts, a classification of workers was adopted which consists of seven grades. The third, fourth and fifth grades combined account for 93% of employees. Examples of occupation (below) are drawn from the metals and mechanical engineering sector.

I Unskilled manual workers and those with no specific technical knowledge for whom a period of on-the-job training is sufficient.

II Workers who carry out tasks for which an elementary occupational knowledge and a brief period of practical experience is needed.

Fitter — who carries out series of simple operations or works on assembly lines.

Tester — who carries out simple tasks with pre-set instruments.

III Skilled worker who carries out tasks requiring a specific occupational skill and work experience.

Fitter — who, on the basis of detailed instructions, sets up and supervises the operation of machines in a computerised system; who checks the quality of the product and controls the parameters of the system, diagnosing faults and carrying out simple repairs.

Tester — who carries out tests on a series of appliances or components, identifying defects and indicating faults.

IV Skilled workers carrying out tasks requiring technical and practical knowledge acquired by attending vocational training courses and specific experience, or workers who co-ordinate and test work.

Tester — who carries out complex testing of the product and its parts, choosing and preparing the measuring instruments

Maintenance mechanic — who, on the basis of detailed instructions, identifies breakdowns and carries out high precision repairs on machines and appliances.

V Workers with the occupational skills indicated in grade IV but capable of using them in a more autonomous and competent manner in working on complex equipment and appliances. They must have an understanding of the specific technologies and the functioning of the appliances. An upper secondary school certificate and specific vocational training are required. An upper division within grade V denotes workers with co-ordination and management responsibilities within their department.

Tester — who decides which complex tasks are to be carried out, including the procedures and the choice of tools, identifying and indicating any faults in the semi-assembled or end product.

Maintenance mechanic — with managerial and operative autonomy who diagnoses and evaluates breakdowns, decides on measures to be taken to resolve intricate problems when carrying out maintenance and repair work on complex machines and installations.

VI Person with high-level occupational skills and managerial responsibilities, with decision-making autonomy within general directives from senior management.

Production programmer; installation programming technician.

VII An executive with high-level administrative and organisational capabilities who co-ordinates services essential to the company, or who carries out highly specialised work.

Design engineer; financial manager.

Table 15

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Tourism and the economy

Tourism world-wide is booming. The number of trips made abroad rose by an annual average of 5.7% during 1986-91 and is projected to continue to increase by an equivalent 4.4% through to 1995. In the period 1980-6, the comparable figure was two per cent annual growth. Similarly, spending by tourists, including on fares, rose by an annual average of three per cent in the period 1980-6, by 4.8% during 1986-91, and is projected to increase by a further 4.6% a year to 1995.

While not contributing as large a share of gross domestic product as in Spain, Portugal and Greece, the tourism industry in the three of the four nations studied nonetheless accounts for between 1.64% (Italy) and 1.28% (the Netherlands) of GDP. This is comparable to the UK, where the contribution is 1.45%. Only in Germany is the figure substantially lower — 0.88%. Looked at in terms of spending on travel, however, Germany accounts for a bigger share of global expenditure than any country except the US (Table 16, p.65).

Calculations as to the number of jobs generated by the industry vary depending on what is included and how the figures are compiled. In broad terms, the French estimate that about 1.5 million people are employed in travel and tourism-related jobs. In Germany, 1.2 million are said to work in the sector, including 150,000 involved in generally large firms which plan and organise travel products, 40,000 who work in travel agencies and tourist information offices, and 110,000 as travel representatives, and couriers and guides on study and holiday tours.

Defining the sector

There are wide variations when seeking to 'draw a ring around' travel and tourism as an industry. In the Netherlands, the customary definition has included six elements, recognised by the existence of different sectoral bodies. The six are: domestic tourism, outbound tourism, inward tourism, daytime recreation, resident recreation, and water recreation. Yet in a 1987 study relating to the planning of vocational education and training, the Dutch found that these distinctions were no longer relevant.

It is significant that the Dutch do include leisure and recreation. The Germans and the French do not, and this is reflected in their training arrangements: as a field of study, leisure and recreation does not exist, and neither country offers qualifications for occupations in this area. By contrast, in Italy, a law on tourism in 1983 recognised 10 new professions for which training was required, including those of sailing instructor, skiing instructor, cave guide, mountain guide and (tourist) entertainment organiser.

In general, travel and tourism could be said to involve three stages of activity: setting up travel and holiday arrangements; getting people to their destinations; and helping them to enjoy themselves once they are there. This involves a lot of occupations which are organised separately for training (and most other) purposes; for example, the hotel and catering sector. There are many, however, who work in tourism-related jobs who may not be employed by specifically travel firms, but

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whose training might fall under 'travel and tourism'. Obvious examples are tour leaders, resort representatives, couriers and guides.

In addition, there is a wide range of people engaged in journalism, advertising and promotion, local authority tourism and environment departments and who work for airlines and shipping companies, for whom training in travel and tourism studies might be appropriate.

The result of drawing too tight a definition of what is relevant for training in 'travel and tourism' is seen best in Germany, where the only qualification is that of *Reisekaufmann* — a skilled worker qualification in the field of commercial and business studies. This enables about 5,400 students a year to enter the *Dualsystem* of apprenticeship and become trained in a travel firm, travel agency or local tourist information office. But, beyond that, there are no school-based courses or qualifications.

The Dutch are currently seeking to develop 'profiles' in the travel and tourism sector, and an initial study has identified 15 occupations. Six of these were deemed to require training at a post-secondary level, four at upper secondary level and five at either or both of these. The occupational profiles are:

Higher level

Tour and recreation management in general

Tour and recreation policy-making management

Tour and recreation supportive management

Education/information/management support

Education/information

Courier/guide/tour management

Upper secondary level

Recreation administration

Reception/cash desk work

Travel advice and assistance

Information supply

Either/both

Administrative management

Recreation management

Management of travel agencies

Administration of travel agencies

Management of information supply

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Industry profile

In all the countries, the travel and tourism industry is, in general, characterised by:

- high staff turnover — for example, in the Netherlands the average length of service is estimated to be no more than three years;
- a largely female (and predominantly young) work-force — reflected in 86% female enrolment on courses for the main travel and tourism qualification, the *brevet de technicien supérieur* in France;
- low pay;
- over-supply of qualified workers, especially in France, the Netherlands, Italy and the UK — in the Netherlands 62,000 people are employed in travel and tourism organisations, yet 10,000 students leave training courses annually;
- a need for increased skills and knowledge, particularly in the practical operation of office systems and business skills such as selling, marketing and promotion;
- large firms involved in the planning and organisation of travel, but a large number of small travel agencies (60% of French travel agency firms employ five or fewer people) and substantial number of self-employed or freelance workers

Forces for change

Consumer demand

The long-term trend is towards people spending more time on leisure and tourism. There is, however, a move away from 'mass market' holidays (always more popular in the UK than on the continent), and towards greater diversification. People increasingly want new locations, short-stay breaks, self-catering holidays and activity holidays, and an ageing population is putting a new emphasis on holidays for the retired. Also, customers expect a better and more comprehensive service.

Competition

Several factors are leading to increased competition. Perhaps the most obvious is the large increase in the number of travel agencies in the 1980s (up by 47% between 1981 and 1988 in Italy). Another is the entry into the market of businesses primarily engaged in other sectors; for example , in the Netherlands many banks and main post offices now offer travel services. Similarly, some large travel firms are setting up divisions to provide specialist services offered in the past by small firms, so that these small firms and tour operators are now having to group together to survive.

There is also the expected effect of the single European market. This will open up competition, leading to greater foreign ownership of domestic travel firms (and the emergence of large transnational operations), and increased worker mobility. Those countries with strong training arrangements may find themselves 'exporting' workers, while poorly qualified or unqualified workers in other countries may face competition for jobs from abroad.

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Information technology

Computerised ticketing and booking systems, viewdata information sources, high speed telecommunications, and the use of office computer systems for handling contracts and dealing with accounts have transformed not only office practices, but also the potential of the business.

Regulation

The move is towards greater consumer protection, and in some countries the licensing of occupations. Since 1983, in Italy, those seeking to operate or work in a travel agency, or to work in a local (government) tourist information office, must be suitably qualified, by having taken the appropriate course at a vocational training institute, and those wanting to offer tourist accommodation have to pass an examination set by the local chamber of commerce.

Organisation of vocational education and training

In historical terms, vocational education and training for jobs in the tourism industry is recent. Nowhere does a significant and distinctive provision date much beyond the early 1970s. In many countries it is still poorly organised, narrow in scope and content, and an uncertain, or more often unnecessary, route to careers in the industry.

In France, training for work in the sector developed out of hotel and catering courses, of which they still tend to be regarded as a 'poor relation'. There are two main courses: a three-year *brevet de technicien* course at upper secondary level and a two-year post A level equivalent course, the *brevet de technicien supérieur* (there are no CAP-level courses); both are entirely school or college-based. The content of the *brevet de technicien* course has not changed fundamentally since 1970, and qualification rates are low: just under a half of candidates pass the *brevet de technicien* examinations and barely more than a quarter pass those at the higher level. Plans are to phase out the *brevet de technicien* course in line with the new accent on the vocational *baccalauréat*. This would ensure inclusion of at least two months of work experience. The current view is that minimum training for the industry should eventually be pitched at a level which requires studies to be completed to one year post-*baccalauréat*.

The Italians and the Dutch also have predominantly school or college-based systems, although work placements of up to one year are being introduced in some courses in the Netherlands. These are the early stages of what promise to be continuing and sweeping changes, which started in 1987 with the introduction of a provisional new travel and tourism curriculum in nine (now ten) upper secondary schools, and the creation of a national consultative committee to advise the government on education and training in the sector at the end of 1988.

In Italy, tourism has been made a responsibility of regional government, and it can be expected that more lower-level courses — of up to two years' length — will be introduced, as they are already, in line with the move towards stipulating qualification requirements to work in travel agencies and tourist offices and to offer tourist accommodation. This is resulting, however, in an increasing overlap between courses in the vocational training institutes (and similar educational establishments) and those developed and run regionally. At present, about 80% of enrolments are in the former and 20% at the regional level.

Germany, in contrast, relies entirely on company-based training through the *Dualsystem* of apprenticeship, with trainees spending three days a week in their firms or organisations and two days at a vocational school (*Berufsschule*). This means that travel and tourism training is led by the willingness of certain clearly-defined types of business — travel companies, travel agencies and local tourist information offices — to offer training places, rather than any wider view as to what kinds of education and training might be needed to improve knowledge and skill levels in the industry as a whole.

Links with employers

Germany is the obvious place to look for a strong and well-established relationship between education and the tourism industry. As has been remarked, the target of this collaboration — the training of about 15,000 commercial clerks and tourist information officers each year — is narrow, and with no separate travel and tourism courses in schools and colleges, the issue of 'industry links' is, in a sense, irrelevant.

The creation of a sector-specific consultative committee under the national steering committee on vocational education and training in the Netherlands promises a more comprehensive co-operation, although everywhere there are questions about the enthusiasm of employers for qualifications in travel and tourism.

When the French decided to remodel the curriculum for the *brevet de technicien supérieur* qualification in 1987, the government wrote to 40 leading firms inviting them to participate. Only six replied and four eventually took part. This may say something about the expectations of French employers to influence decision-making in a system built on central government direction. At the least, it raises a doubt about the practice of education-industry collaboration as against the official 'theory' of committee structure and consultative procedures. The issue, perhaps, is the extent to which employers can feel genuine 'ownership' of training arrangements.

A couple of factors make collaboration in travel and tourism more difficult than in other sectors. One is the fairly deep-rooted lack of employer belief in the worth of existing (or even any) qualifications in the field. The over-supply of students leaving travel and tourism courses tends to exacerbate this, but, specifically, employers complain about students' vague knowledge of computerised office systems and their lack of business ability or 'enterprise skills'. Faced with the need for people who can market and sell products — and who can promote their town or region abroad — firms and local authorities are inclined to look to higher education to recruit business graduates and linguists. Conversely, there is a strong element of opinion among employers that all that really is required of recruits is reasonable literacy and numeracy, a willingness to learn, good work habits, a tidy appearance and a personable manner; the rest can be dealt with 'in house'. Another aspect of the problem of credibility is employers' dismissiveness about what they see as the lack of up-to-date knowledge of practical operations — especially office systems — on the part of school and college teachers. This was noted both in France and Germany.

Another factor is the legacy created by the lack of comprehensive training arrangements in the past. This has allowed many market niches for private schools and colleges, some of which have built up their own relationships with employers, and it has also encouraged larger firms to make their own arrangements.

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Curriculum issues

The place of languages

In continental countries, language learning plays a part in vocational curricula but, in many ways, is seen primarily as an issue for primary and secondary schooling. This is particularly true of Germany, where the expectation is that trainee apprentices will have mastered adequate foreign language proficiency at school. There are almost no foreign language teachers in the *Berufsschulen* — a situation which is more of a handicap for the training of the *Reisekaufmann* than it is in that for the longer-established manufacturing crafts and trades.

Other countries place the further development of foreign language competence as a key element in upper secondary curricula for travel and tourism courses (see Table 17, p.66). In the Netherlands, students devote about one-third of their class time to the study of at least two foreign languages. At a leading Dutch private college — Intercollege — students study each of four languages (English, French, German and Spanish) two hours a week and are expected to complete an equivalent amount of homework. In addition, course content in other subjects is taught through the medium of a foreign language, an approach which is designed to enable students to become competent in all four languages in 18 months of class time.

A broader and more integrated curriculum

The trend is towards vocational programmes which begin with a foundation year common to a number of related jobs, followed by progressive specialisation. This is beginning to be seen in the design of travel and tourism courses, most notably in the Netherlands, where it is recognised that a set of core skills are appropriate to the 'people industries'. The move is away from narrow and fragmented curricula.

Tourism revenue and travel expenditure

Tourism revenue as a percentage of gross domestic product in 1990

Portugal	5.54
Spain	5.23
Greece	4.62
Ireland	2.61
Denmark	2.13
Belgium	2.03
Italy	1.64
United Kingdom	1.45
France	1.34
Netherlands	1.28
Germany	0.88

Spending on travel, including fares, as a percentage of the world total

United States	21.2
Germany	14.7
Japan	12.8
United Kingdom	9.2
France	6.2
Canada	4.5
Netherlands	4.1
Others	27.3

Sources: *The Economist, The World in 1991* and the Organisation for Economic Co-operation and Development.

Table 16

Travel and tourism courses in Italy

Five examples

Agency worker

Two years on a regionally-organised training course. Qualified to work as a desk or ticket clerk. Subjects are similar to those for a trainee tourist office worker, although courses vary from region to region. A brief work experience period in an agency is usually included.

Tourist guide

Three years at vocational training institute specialising in commercial studies (*Istituto Professionale per il Commercio*). Qualified to plan and organise travel, to accompany groups, and to give information on the art and history of places of interest. Normally works as freelance to tourist agencies and offices.

Tourist office worker

Three years at a vocational training institute. Qualified to carry out desk work and organise itineraries in tourist offices. Main subjects are geography, tourism law, shorthand, typing, tourism agency operational techniques, and two foreign languages.

Tour operator

Five years at a vocational training institute (*istituto professionale*). Qualified to carry out promotional and office work in tourist agencies. In the final two years of the course more emphasis is given to the study of two foreign languages, tourism law, agency operations, geography, and the history of art.

Tourism expert

Five years at specialist upper secondary technical school (*Istituto Technico per il Turismo*). Qualified to manage travel, tourism and ticket offices. Main areas of study include: geography, economics and tourism, transport, tourism techniques, accountancy, tourism law, publicity and public relations, history of art, three foreign languages, and agency operations.

Table 17

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Objectives of training for the *Reisekaufmann*

Travel organisation

- plan, organise, cost, sell and implement package tours
- process reservations forwarded by travel agencies and settle accounts with contractual partners
- deal with complaints and their causes

Travel information

- offer the customer a range of study, conference, sports and other package tours, and to sell and book space on behalf of tour and holiday organisers
- provide business and holiday travel information, carry out travel ticketing and other reservations, including for accommodation and car hire, sell insurance and conduct currency exchanges
- process and keep account of bookings and services sold, and deal documentation contractually required by tour organisers and others
- receive and process complaints
- organise sightseeing trips and visits at tourist destinations, and book guides and tickets for events

Spa and local tourism offices

- advise customers and make accommodation reservations
- plan, organise and carry out events, conferences and conventions at local venues
- deal with the administration of regulations regarding visitors' tax and tourist fees
- maintain and analyse statistics on numbers of guests and overnight stays
- plan and organise advertising and marketing campaigns
- assist in the planning, organisation and running of spa activities and advise visitors on questions relating health therapy
- prepare invoices for therapy treatments and settle accounts with customers and insurance companies
- deal with complaints relating to therapy treatments

Table 18

Travel and tourism syllabuses: three examples

German *Berufsschule*

Day release outline syllabus for *Reisekaufmann* training in vocational schools in North Rhine Westphalia. Course delivery is over 12 hours on two days a week for three years.

Level 1

Two hours of Tourism Studies and one each for the following: Religion, Politics, German, Sport, Economics, Commerce, Travel Geography, Mathematics, Bookkeeping, and Business Organisation.

Level 2

The same as for Level 1 except for deletion of Business Organisation and allocation of a second hour to Mathematics.

Level 3

The same as for Level 2 except for reduction of Mathematics to one hour and allocation of a second hour to Bookkeeping.

Dutch upper secondary school

Outline syllabus at De Factoor College, one of the 10 upper secondary schools offering travel and tourism training.

First year

Students have a choice between a 'standard' syllabus involving the study of two foreign languages or an 'alternative' syllabus including three foreign languages. Three hours' study a week are devoted to each language, chosen from English, French, German and Spanish.

The 'alternative' syllabus also includes two hours each of Business Economics and Administration, and Advertising and Art History, and one hour each of Computer Science, and Recreation and Hospitality.

Common to both syllabuses are four hours of Dutch; three hours of Tourism and Accounting; two hours of each of General Economics and Statistics, Civil Law, Social Studies, Typing and Word Processing, and Animation/Physical Education; and one hour each of Commercial Studies, Practical Vocational Studies, Tourist Geography, and Religion.

Second year

The choice between 'standard' and 'alternative' syllabuses continues, with the same arrangements for foreign languages.

Common elements are (hours in brackets): Dutch (3), Tourism and Accounting (3), Tourist Geography (3), 'Animation/PT' (2), Religion (1), General Economics and Statistics (1), Social Studies (1), and Practical Vocational Studies (1).

The 'standard' syllabus also includes: Business Economics and Administration (2), Advertising and Art History (2), Computer Science (1), Recreation and Hospitality (1) and Religion (1). In addition, there are these options: Commercial Studies (3), Management (3) and Typing and Word Processing (2).

In contrast, the 'alternative' syllabus adds to the foreign language requirements and common elements only one additional hour of study in Commercial Studies. (Thus, the 'alternative' syllabus is shorter than the 'standard' one in the second year).

Third year

In this year there is one syllabus, with compulsory and optional subjects.

Compulsory are four hours each on two foreign languages (drawn from the same list), plus Dutch (4), Tourism and Accounting (4), Tourist Geography (4), 'Outgoing Tourism' (2) and Religion (1).

Options include: Commercial Studies (4), Typing and Word Processing (4), Management (4), 'Incoming Tourism' (2) and Recreation (2).

Brevet de technicien du tourisme

This qualification follows three years of study at upper secondary level in France. The figures in brackets are for hours per week.

Year One

Four hours each of French and two foreign languages. Two hours each of: Geography, Mathematics and Statistics, Tourism Economics, Introduction to Management in Organisations, Transport Documentation, Typing, Shorthand, Office Practice, and Physical Education. One hour each of: History of Civilisations, Introduction to Civil Law, and Introduction to Commercial Law.

Year Two

Three hours each of French and two foreign languages, and transport documentation. Two hours each of: Geography, Mathematics and Statistics, Introduction to Management in Organisations, Typing, Shorthand, Office Practice, Selling, and Physical Education. One hour each of: History of Civilisations, Tourism Economics, General Economics, and Transport and Tourism Regulations and Legislation.

Year Three

Compulsory: Three hours each of French and two foreign languages. Two hours each of: Geography, and Introduction to Management in Organisations. One hour each of: History of Civilisations, Mathematics and Statistics, General Economics, Employment Law, and Organisation of Tourism. In addition, there are two sets of options.

Travel and transport option: Ticketing and Tariffs (5), Freight and Traffic (3), Travel Agency Operations (2), and one hour each of Business Correspondence, and Typing.

Tourist information option: Documentation (2), Publicity (2) and Organisation of Resorts (1), plus a selection from: Letter and Report Writing, Typing, and Organising Holiday Stays.

Table 19

CONCLUSION

This brief conclusion summarises practice across the four countries and the United Kingdom in five areas of concern to curriculum planners.

Participation

The presence of vocational education in compulsory schooling tends to be more marked in systems where the lower secondary stage — roughly that covering students aged 12 to 16 — is divided into different streams and/or schools. In Germany, for example, nearly 40% of the age group attend the practically-oriented *Hauptschulen*.

But as experience shows in the Netherlands, where the vocational stream has become a 'last resort' choice among parents, the quality of work-related education in such streams is often open to doubt. This has happened to an extent in France, where the two-year pre-vocational studies programme has customarily been regarded as more suitable for the least academically able.

Participation in vocational education and training after compulsory schooling is strongest in those countries — notably the Netherlands and Germany — where lower secondary vocational streams exist to link into those at the upper secondary level. In other countries there is often an awkward transition with routes much less clear (although perhaps getting clearer). In some countries — France and the UK are examples — there also remain problems of status between academic and vocational studies.

Apart from Germany, where three-quarters of young people at one time or another take part in the apprenticeship system, apprentice training is undertaken by between ten per cent and 20% of school-leavers. This is not greatly larger than the proportion leaving, usually without any qualifications, and entering jobs without training. The most common destination is full-time further education, although both in Italy and UK this is modified by the existence of 'government schemes' which provide work experience and some on-the-job training; these, however, frequently leave students 'unqualified'.

Generally, participation is increasing as governments adopt comprehensive education and/or training options for 16- to 18-year-olds and employers become reluctant to recruit unskilled school-leavers. National targets are being set which imply both greater participation and increased attainment levels. Reforms, such as the introduction of the *baccalaureat professionnelle* and the proposed Advanced Diploma in the UK, are designed to help meet these goals.

Specialisation

Early specialisation is fast falling out of favour, even in a country such as the Netherlands where streaming takes place prior to lower secondary education. The move is towards a 'broad and balanced' curriculum for all students, which offers a firm base in the sciences, languages (both domestic and foreign), and maths. These are subjects which provide foundation skills and knowledge for employment as well as further study.

Part of this foundation, although not always articulated separately in the curriculum, is activity to promote work-relevant skills and technology, such as in information technology, an appreciation of the business and employment environment and study and careers guidance. These trends are as well illustrated in the UK as anywhere, arguably more so.

At the post-compulsory school level, the same trend is illustrated by the grouping of occupations into vocational study areas (as in the German apprenticeship system), with broad initial education and training leading to progressive specialisation. For example, a three-year programme might start with an initial year common to an industry, a second year devoted to a sector within that industry and a third year specific to a job. One of the issues is whether to restructure and reform existing qualifications in this way or, as in the UK, to opt for the creation of a separate system of general vocational qualifications as well as more occupationally specific ones.

Associated with broader-based courses and delayed specialisation is the rationalisation of qualifications — a development well underway, although in different forms, in several countries. In Germany the number of 'recognised occupations' within the apprenticeship system has been reduced through amalgamation (and thus common training arrangements); in France the number of specialisms with the craft-level CAP and BEP qualifications is being reduced; while in the UK the creation of the NVQ framework is resulting in the creation of new and revised qualifications within a coherent national system.

Flexibility

Implicit in the new curricula and qualification arrangements is the need for more flexibility — between career choices, between vocational and academic programmes — to provide a system which caters as well for older students and trainees as it does for the young.

In most countries efforts are being made to improve and clarify progression routes into higher education and to integrate industry-based training, such as apprenticeship, and college-based vocational education. One factor encouraging the latter is the sophistication of technology: companies find it easier to provide access to specialised equipment through group arrangements, whether within the industry or through the use of local centres, and these are more readily linked to the college system.

A number of developments are required to clear the path for those wanting to move more easily within the vocational education and training system, but as yet only modest progress has been made. Competence-based curricula and assessment, modularisation and credit accumulation and transfer schemes, and the accreditation of prior learning and experience and of work-based learning are still relatively rare, and comparatively rarer on the continent than in the UK.

Continuing education

Arrangements are extremely diverse and generally unco-ordinated. Progression to higher vocational qualifications, whether in university-level institutions or from journeyman to meister in the German apprenticeship system, is relatively straightforward, and all the countries have open university systems which provide a measure of access to higher level studies. Updating and retraining arrangements for employees, however, have been left to employers, professional bodies and the individuals themselves. Unlike in the UK, vocational schools (further education colleges) have not as yet recognised the 'adult market'.

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MCJ

Further Education Unit

Objectives

The objects for which the **Further Education Unit (FEU)** is established are to promote, encourage and develop the efficient provision of further education in the United Kingdom and for that purpose:

a) to review and evaluate the range of existing further education curricula and programmes and to identify overlap, duplication, deficiencies and inconsistencies therein;

b) to determine priorities for action to improve the provision of further education and to make recommendations as to how such improvement can be effected;

c) to carry out studies in further education and to support investigations of and experimentation in, and the development of, further education curricula and to contribute to assist in the evaluation of initiatives in further education;

d) to disseminate and publish information, and to assist in the dissemination and publication of information about recommendations for and experiments and developments in further education.

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